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DEPARTMENT OF LABOUR, CANADA

HON. G. D. ROBERTSON, MINISTER OF LABOUR

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BULLETIN No. 1. VOCATIONAL EDUCATION SERIES

Vocational education, no. 1-13

PROCEEDINGS
OF THE FIRST
NATIONAL CONFERENCE ON TECHNICAL EDUCATION

CANADA
Ottawa, October 25-26
1920

ISSUED BY THE DIRECTOR OF TECHNICAL EDUCATION
DEPARTMENT OF LABOUR
CANADA

OTTAWA
THOMAS MULVEY
PRINTER TO THE KING'S MOST EXCELLENT MAJESTY
1921

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LETTER OF TRANSMITTAL

DEPARTMENT OF LABOUR,
TECHNICAL EDUCATION BRANCH,
OTTAWA, March 22, 1921.

SIR,—On October 25–26 representatives of the Departments of Education of the several provinces of Canada assembled at Ottawa to discuss fundamental questions relating to technical education and other educational questions of general interest. The Federal Director of Technical Education was present at this conference and was appointed secretary thereof. As much of the discussion is of value to those who are interested in the extension of vocational education, the proceedings have been edited for publication. I am, therefore, transmitting the manuscript to you with the recommendation that it be printed as a Bulletin of the Technical Education Branch as soon as possible. The publication of the report will be a matter of convenience and interest to members of the conference, and is, of course, intended in no way to indicate an acceptance of views expressed.

L. W. GILL,

Director of Technical Education.

The Deputy Minister of Labour.

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AGENDA

OF THE

NATIONAL CONFERENCE ON TECHNICAL EDUCATION, OTTAWA, OCTOBER 25–26, 1920

Subjects for Discussion

1. Teacher Training.
2. Prevocational Classes and Vocational Guidance.
3. Courses of Study.
4. Text-books.
5. Condition for Entrance to Technical Classes.
6. Length of School Day.
7. Length of School Year.
8. Educational Reports, Method of Preparing.
9. General Supply of Teachers.

PROVINCIAL REPRESENTATIVES AT THE CONFERENCE

British Columbia—

Mr. J. Kyle, Organizer of Technical Education.

Alberta—

Hon. G. P. Smith, Minister of Education.
Mr. J. Ross, Deputy Minister of Education.
Mr. D. A. Campbell, Director of Technical Education.

Saskatchewan—

Mr. R. F. Blacklock, Registrar, Department of Education.

Manitoba—

Hon. R. S. Thornton, Minister of Education.
Mr. R. Fletcher, Deputy Minister of Education.
Mr. R. B. Vaughan, Director of Technical Education.

Ontario—

Hon. R. H. Grant, Minister of Education.
Dr. F. W. Merchant, Director of Technical Education.

Quebec—

Mr. A. Macheras, Director of Technical Education.
Mr. Ian McLeish, Assistant Principal, Montreal Technical School.

New Brunswick—

Mr. F. Peacock, Director of Technical Education.
Rev. Father Tessier, Member, Vocational Education Board.

Nova Scotia—

Dr. A. H. MacKay, Superintendent of Education.
Dr. F. H. Sexton, Director of Technical Education.

Prince Edward Island—

Mr. R. H. Rogers, Superintendent of Education.

Representing the Federal Department of Labour—

Prof. L. W. Gill, Director of Techncial Education for Canada.

RESOLUTIONS

ADOPTED BY

THE NATIONAL CONFERENCE ON TECHNICAL EDUCATION

I. Whereas the supreme need in the proper and efficient development of technical education throughout the Dominion of Canada is an adequate supply of specially trained and skilled teachers;

And Whereas, only a very small number of thoroughly trained vocational instructors has been found in any and all of the provinces;

And Whereas, no institution exists in Canada for the preparation and training of teachers of vocational subjects;

And Whereas, the work of training such teachers can be done more economically and more efficiently by interprovincial co-operation than by independent efforts;

And Whereas, such co-operative action will aid in the development of broader conceptions on the part of the individual teachers and a more intense national spirit;

Be it Resolved that the representatives of the Departments of Education of the several provinces of the Dominion in conference assembled urge that immediate action be taken in the following direction:—

1. That the Federal Government and the various provinces co-operate to establish and maintain one central institution for the adequate training of special teachers for vocational education.

2. That the basis of co-operation should be as stated hereunder:—

(*a*) That the Federal Government provide the accommodation and equipment and one-half the cost of maintenance.

(*b*) That the Provincial Governments combine to bear the other half of the maintenance costs in proportion to the urban population of each province, included in towns and cities having over 3,000 inhabitants.

(*c*) That the ownership and management of the institution be vested in a board of governors with condition that the ownership shall revert to the Federal Government in case the property should no longer be required for the designated purpose; the members of said board to be appointed as follows: Three by the province of Quebec, three by the province of Ontario, one by each of the other provinces, and two by the Federal Government; members to be appointed for three years, one-third to be retired each year; the board to select its own Chairman.

(*d*) That the institution have a dual staff—French and English.

(*e*) That transportation of teachers-in-training be paid for by the training institution.

II. Resolved, that the secretary be instructed,—

(1) To forward a copy of resolution *re* teacher-training to each of the Provincial Governments, and, on behalf of the conference, ask them to co-operate in giving effect to the resolution.

(2) To secure replies from the various provinces as soon as possible, and in case he finds that six or more provinces signify their willingness to pass the necessary legislation and co-operate in giving effect to the proposal, to ask the Minister of Labour to endeavour to secure the co-operation of the Federal Government.

III. Whereas, it is desirable that children should have more opportunities to obtain an educational development which is suitable to their native ability and aptitudes,

Resolved, that junior industrial courses should be established for children who have completed grade VI, such courses to extend over a period of three years and to have a decided bias toward one or other of the main divisions of industrial activity, viz., commercial, manufacturing, trades, agriculture, household.

IV. Resolved, that a committee, consisting of the federal director and the provincial directors, or other representatives, be appointed to formulate a system of vocational guidance.

V. Resolved, that the conference ask the Federal Department of Labour to issue from time to time suggestive courses of study, texts, pamphlets, bulletins, monographs, and other material which would assist provincial officers in the problems of organization, development and administration of technical education.

VI. Resolved, that, in the opinion of this Conference, the school year for full-time technical classes should be of the same length as the ordinary school year; and, further, that the school year as at present observed is too short.

VII. Resolved, that university authorities be urged to prescribe a special matriculation course and examination for pupils attending technical schools who desire to enter the faculties of engineering or home economics.

VIII. Whereas the custom duties imposed on machines and equipment required in technical schools for educational purpose unduly discriminate against the technical school in comparison with other educational institutions for which scientific equipment is admitted free of duty,

Resolved, that this conference ask the Minister of Labour to interview the Minister of Customs with the view of securing either a more liberal interpretation of the present tariff clause relating to scientific apparatus, or an amendment of the same, so that technical school equipment may be admitted free of duty.

IX. Whereas the education of our new Canadians of foreign origin cannot be accomplished without the regular operation of the schools in non-English settlements;

And whereas this problem is one of national responsibility and national importance, quite beyond the ordinary financial possibilities of the provinces,

Resolved, that this conference is strongly of the opinion that the Federal Government should, without delay, provide financial assistance to the provinces, so that an adequate supply of specially selected teachers may be trained for this work, and provided in rural districts with permanent and attractive homes;

Resolved further, that copies of this resolution be forwarded to the Premier of Canada, to the Minister of Labour and to the Minister of Colonization.

National Conference on Technical Education

FIRST SITTING, MONDAY, OCTOBER 25, 1920

The conference assembled in a committee room of the Parliament Buildings, Ottawa, at 10 a.m.

Prof. GILL: Gentlemen, Hon. Senator Robertson, who is responsible for the administration of the Technical Education Act, would like to say a few words to the conference before it begins its deliberations.

ADDRESS BY HON. MR. ROBERTSON

Gentlemen, I desire first of all to express the very deep and sincere appreciation of the Department of Labour at the response which representative men in educational work of the various provinces have made to the invitation issued by Prof. Gill for this meeting. The technical education work which we are attempting to carry on in co-operation with you is merely for the purpose and with the intention, so far as the Federal Department of Labour is concerned, of encouraging and promoting technical education throughout Canada and working in harmony with the authorities in the various efforts towards that end.

I would suggest that this conference should not be regarded as one called by the Federal Department of Labour, or in any way carried on by it, but that it should be regarded as a conference of representatives of the educational departments of the various provinces, and as an interprovincial conference, for which the Department of Labour has simply done secretarial duty in bringing you together, and acting as a medium through which the various provincial authorities have come together. So, as you proceed, I wish you would feel perfectly free, and not in any way look to the Federal Department of Labour for any direction, so far as your conference is concerned.

Prof. Gill has been chosen as the Director of Technical Education, to assist in the administration of the Technical Education Act, which comes under the jurisdiction of the Department of Labour. Prof. Gill, I know, needs no introduction to any of you gentlemen from the various provinces, because he has come into personal contact with you all, I assume, and you know his methods and plans, and know that they are, to use a common term, a policy of absolutely open diplomacy. It is desired that, in so far as it is possible, the Federal Government, through the Department of Labour and the Technical Education Branch as directed by Prof. Gill, shall gather information from all sources, from every country in the world in fact, and transmit that information to the various provinces. It is desired to help you in any way that is possible, by the gathering of information, by the submitting of proposals for your consideration, and by working in harmony with you. Prof. Gill has prepared an agenda setting forth a number of subjects which it is suggested should be discussed at this conference. I assume that you will feel perfectly free to discuss any other subjects, not mentioned on the agenda, upon which the members think there should be a discussion. The mere fact of their absence from the agenda should not prevent their being discussed. I may perhaps be pardoned for making the suggestion to you, that there is one subject in particular, which ought to receive very serious and careful consideration at your hands, and that is the question of how best to provide means whereby a competent staff of teachers may be available for the needs of technical education in all of our provinces. While some provinces may feel that they can supply their needs in that direction without difficulty, I think that others feel that particular attention should be given to this subject, and the ultimate success of the whole undertaking must necessarily depend upon an adequate staff of competent teachers, specially trained in this work. It is quite impossible, as you will of course understand, for me to commit in advance the Federal Government to any further expenditure of money outside that already provided by statute, but I do say to you that if, after careful discussion among yourselves, you find that there is any plan which can be adopted whereby you, unitedly, and we in co-operation with you, can bring about some centralized arrangement to provide a competent staff of teachers, better trained and better qualified than would be possible by the separate action of the provinces, we desire to do everything we can to strengthen your hands and to promote the efficiency of the service which we are engaged in discussing to-day. It might be fitting for me just briefly to refer to another experience the Department of Labour has had, which makes me believe that there are great possibilities in co-operative action as among all the interests and all the provinces concerned in the matter of technical education. It is only a couple of years, or less, since the end of the war, and when the war ended there was a great problem facing the people of Canada in the re-establishment of the half million soldiers and civilian war workers who found themselves out of employment. Legislation was passed which had as its basis co-operation between the Provincial and Federal Governments in the matter of establishing an employment service throughout Canada. That worked out most satisfactorily, and what seemed to be an almost impossible task was accomplished, and during the past two years there has not been at any time any serious unemployment situation in Canada. The records coming in from the provincial superintendents, who are the employees of the Provincial Governments, to our central office here, show that from March 1, 1919, to August 1, 1920, a little over 551,000 men and women were placed in employment, more or less permanent, through the instrumentality of the employment service of Canada, which is co-operative almost exactly on the same basis as technical education. (Applause).

I think, gentlemen, that this is a clear demonstration of the possibility of successful co-operative work; it is a proof of the good results that are bound to come if we work together as a unit in the interests of the people of Canada, working for Canada rather than keeping in mind one particular province, or endeavouring in any way to control the destinies of the movement, either provincially or federally. May I say again that so far as the Federal Department of Labour is concerned, we have but one desire in this matter.

The suggestion of a Technical Education Act to be passed by the Federal Parliament came about in a peculiar and somewhat unexpected way. Early in 1918 it was not known when the end of the war would come, or what further sacrifices it might be necessary for the people of Canada to make before victory was won. It was therefore decided to take an industrial census of our people. This work was undertaken by a board upon which various interests had representation, including capital and labour. Two men were thrown into contact as a result of the appointment of that Canada Registration Board. One was the secretary of the Canadian Manufacturers' Association, and the other the gentleman who is now the president of the Trades and Labour Congress of Canada. As a result of several months' working together on that board, those two men came to the conclusion that there were a number of subjects upon which employers and labour ought to agree, and that instead of each going behind closed doors, as had been their custom in years past, and each making their representations to the Government, they ought to act im common upon questions regarding which they could agree. Consequently, in October, 1918, a delegation of six men, three appointed by the Canadian Manufacturers Association and three representing labour, waited upon the Government and made a proposal that in the interest of industry, from the standpoint of both the employer and the workmen, as well as in the interest of the state, it was desirable that the Federal Government should encourage and promote technical education as far as lay within its power. The Technical Education Act is the result.

Now. gentlemen, we hope and propose that the spirit of co-operation which actuated these interests in recommending this legislation may be carried into its administration. The policy is that provincial authorities, who have full jurisdiction in matters of education, shall feel free to carry on this work and shall regard the Federal Department of Labour as an agency to aid them in their efforts in carrying on their work efficiently and in a uniform, standard way, as far as possible. If Canada is to be a united nation, if we are to carry on our work of government in the interest of all the people, then I think it is true that it ought to be carried on as nearly as possible in a uniform way throughout the whole of our nation. At the recent meeting of the Canadian Bar Association that same thought was expressed regarding the simplifying, unifying, and co-ordinating of provincial law, as far as possible, throughout the whole country. Therefore I hope that in your deliberations here you may be able to devise methods and adopt means that will be satisfactory to all and will make for uniformity throughout the Dominion.

I shall not presume to take up your time further, because you gentlemen are all skilled and expert in the particular subjects which you are to discuss. I have only perhaps, a vague knowledge of the details of technical education, but I do commend to you the Director of Technical Education for the Department of Labour, who is, I know, an ardent student and a very ardent advocate of technical education. He is, I think, fully competent to represent the Department of Labour at this conference. Before taking my seat, however, and for the purpose of starting this meeting off towards a regular organization, I may be pardoned for assuming to occupy the chair temporarily, until you appoint a permanent chairman and perhaps a vice-chairman. If there is no objection to my doing this, I would ask for nominations, or for a nomination of a chairman to preside over your sessions.

Nominations and Organization of Conference.

Hon. Dr. Thornton: I would like to suggest that Mr. Grant, Minister of Education for Ontario, be chairman.

Hon. Mr. Grant: Senator Robertson and gentlemen, I regret that it will be impossible for me to remain here during the meeting of the conference. I appreciate the honour you have done me, Dr. Thornton. I am sure we all appreciate the kindly greetings of Senator Robertson this morning, and his many kind assurances of sympathy. I think I am within my right in also saying a word of welcome to you, gentlemen, this morning, as this is my home town—the place in which I was born and brought up and received my education. It has very many kind recollections. I regret that I shall not be able to be with you during the coming days of the conference, but I assure you all of my very deep interest and sympathy. I would move that Hon. George Smith, Minister of Education for Alberta, who, I understand, will find it convenient to be here, should be our chairman.

Dr. Sexton: I have very much pleasure in seconding the nomination of Hon. Mr. Smith. I think all of us have been convinced of the fairmindedness judgment and vision of the Department of Education in Alberta, in the past and may be assured of these qualities in the present minister, even though we do not know him personally. (Applause.)

Hon. Mr. Robertson: You have heard the nomination as made by Mr. Grant, the Minister of Education for Ontario, and seconded by Dr. Sexton, that Hon. George Smith, Minister of Education for Alberta, should preside as chairman at this conference.

The motion was agreed to.

Hon. Mr. Robertson: Hon. Mr. Smith, I have pleasure in inviting you to take the chair and preside.

Hon. Mr. Smith: Senator Robertson and gentlemen, I appreciate very much indeed the honour of being asked to preside over this conference. I regard it as a conference of exceptional importance; all national conferences must necessarily be. I intend to be here until Wednesday evening, and after that it will be impossible for me to remain. With that in view, it might be well to follow the suggestion made by Hon. Mr. Robertson to appoint a vice-chairman, and if it should happen that our work is not finished when I have to leave, there will be someone ready to take the chair.

Mr. Campbell: I move that Dr. MacKay be vice-chairman.

Mr. Rogers: I will second that nomination.

Dr. MacKay was appointed vice-chairman.

The Chairman (Hon. Mr. Smith): I do not know whether any remarks are expected of the chairman at the outset. I may say that I am in very hearty sympathy with the purposes of this conference. There are one or two matters which I think are of vital importance; one is the adequate training of teachers for this work, and the other is the matter of training for citizenship, and, linked with it, the matter of securing an adequate supply, not of technical teachers but of school teachers for the provinces of this Dominion, and, perhaps more particularly, for the non-English speaking districts. These are matters that I would like to have discussed pretty thoroughly at this conference, to get the views of the various representatives from the different provinces. I believe very firmly that if we are to undertake the training of special teachers to carry on technical and vocational work, it can better be done by the Dominion, with the co-operation of the provinces. As a matter of fact, it should be done by the provinces, with federal leadership and federal assistance. I think that the work can be better done in that way. It is an expensive undertaking, and one good school, properly equipped and properly staffed, will be much more efficient than any school which may be organized by an individual province.

There is another matter linked closely with this problem, and which I think might receive consideration from the different speakers, and perhaps in a resolution. I refer to the necessity of providing post-graduate work to specially equip Canadian teachers for work in any line of teaching. Our teachers who now wish to qualify specially, are compelled to go to American or foreign universities to get the necessary post-graduate training. I think this is a very great pity. Apparently no Canadian university feels itself sufficiently strong financially to undertake this rather expensive and complex work, but I believe it is of first-rate national importance that Canada should in some way provide for post-graduate studies for her teachers in any and every line. I also believe that concerted action by this conference on questions relating to technical education will constitute the foundation for that development in the not distant future. I would like that point to receive consideration. I am positive myself of its importance, and I do not think that there will be any difference of opinion around this table, or any difference of opinion anywhere, as to the advisability and obsolute necessity, from a national standpoint, of providing good, sound, Canadian training on Canadian soil for the teachers of Canadian youth. (Applause.)

Having appointed a chairman, I assume the next step is to appoint a secretary. Will it meet the wishes of the conference if Prof. Gill, who has been acting in the capacity of secretary *pro tem.*, should carry on?

As there was no opposition, Prof. Gill was asked to act as secretary.

The Chairman: Gentlemen, there are a great many conferences being held in these days, and we do not always secure very definite results. I think we should take a little pains to organize this conference in a businesslike way.

Please feel very free in offering suggestions, and let us all help to get a good, business organization, so that after we have spent two or three days here we shall not go home feeling that we talked a lot but didn't do anything. We want to get somewhere. We want to be definite. We want to have good resolutions, carefully drawn and well discussed; not too many of them. I think that perhaps a good committee on resolutions should be appointed now, and this committee should be given all the time available to get their ideas into shape and to discuss matters with one another.

Mr. KYLE: Mr. Chairman, the idea of a Resolutions Committee is one which appeals to me. I propose Dr. Merchant, of Ontario, as one who should be on that committee.

The CHAIRMAN: Will you give me other nominations, please?

Dr. McKAY: I would nominate Dr. Sexton, of Nova Scotia.

The CHAIRMAN: I think we should have a committee of five.

Hon. Dr. THORNTON: I suggest Mr. Fletcher, Deputy Minister of Education of Manitoba.

Dr. SEXTON: I would like to nominate Mr. Macheras, Director of Technical Education for the Province of Quebec.

Mr. ROSS: Is this for the technical work alone?

The CHAIRMAN: Yes.

Mr. PEACOCK: I would like to nominate Mr. Ross, of Alberta.

Mr. ROSS: I prefer not to act on account of it being technical. I would rather have technical education experts on that committee.

Mr. PEACOCK: I beg to nominate Mr. Campbell, the Director of Technical Education for Alberta.

Dr. MERCHANT: I would suggest that each province be represented on this committee.

The CHAIRMAN: That is a good suggestion. It would mean only two or three more members.

Dr. MERCHANT: I would nominate Mr. Kyle, of British Columbia.

Mr. ROGERS: I nominate Mr. Peacock, of New Brunswick.

Mr. FLETCHER: I nominate Mr. Blacklock, for Saskatchewan.

The CHAIRMAN: We now have one representative from each province for the Resolutions Committee. Will the secretary please read the names?

Prof. GILL: Mr. Kyle, British Columbia; Mr. Campbell, Alberta; Mr. Blacklock, Saskatchewan; Mr. Vaughan, Manitoba; Dr. Merchant, Ontario; Mr. Macheras, Quebec; Mr. Peacock, New Brunswick; Dr. Sexton, Nova Scotia; Mr. Rogers, Prince Edward Island.

The CHAIRMAN: The first nominee on this committee was Dr. Merchant. If there is no objection I will ask him to act as convener of the committee.

Agreed.

The CHAIRMAN: Is there anything else in the way of organization that anyone can suggest?

Dr. SEXTON: To stimulate action in the meeting, I would suggest that some one person be asked to open the discussion on each question. This person might present his views in general terms. We would then have something to bite on.

Prof. GILL: I have drafted a very broad resolution, with the idea of bringing it before the meeting so that the discussion might be started in that way. I have passed around copies of this resolution.

Dr. MERCHANT: That raises a question as to the function of our Resolutions Committee. Is the committee to summarize in a series of resolutions to be passed at the end, the findings of the conference, or are we to present resolutions for discussion before the topics on the Agenda are taken up? I should like to have the opinion of the conference on this question.

The CHAIRMAN: I think that any resolution which is submitted by an individual here will be for the purpose of guiding discussion; but the resolutions which are to be the official record of the findings of this conference should be presented by the Resolutions Committee.

Dr. MERCHANT: I was not making an objection. I think this is a good scheme. I simply want to know what is the function of our committee.

The CHAIRMAN: I would say that the function of your committee is to take any draft resolution which may be presented to the conference, and, after hearing the discussion, redraft it so that it will embody the consensus of opinion as expressed in the discussion.

TEACHER TRAINING

The resolution, number 1, which is presented by Prof. Gill, reads as follows:—

> Resolved, that to insure the successful development of vocational education in Canada it is necessary to train teachers specifically for this work, and that such training should be undertaken without delay.

Mr. KYLE: I think, Mr. Chairman, that this little resolution strikes at the heart of our whole problem of technical education in Canada. The question of where this work is to be done, and how it will be financed, takes a second place to the question of the teacher who is going to take charge of the course of studies. The selection, by the various provinces, of persons who are to be teachers is a very big question, because we will be confronted with the problem of securing the services of men who must fill positions as teachers of shop methods, and men who must give the necessary academic training. One of these groups must give the required instruction in the subjects closely related to shop problems and in the Western Provinces this type of teacher will be the most difficult to find. An important point, therefore, to decide will be whether a shop teacher or an academic teacher will be the most successful as a teacher of related subjects. The equipment and course of study in the training school must depend upon this decision, for to teach theoretical work to shopmen who have already mastered the machinery will be found to be very easy and economical compared to the shop training of the theorist. Some of the discussion might well bear upon these points, but I mention them merely to introduce the subject and in order that some person more able than myself may deal with them.

Dr. MCKAY: Mr. Chairman, I think it may be taken for granted that we are all favourably disposed towards the specific training for this work. The only doubt or question would be whether it should be taken without delay; and I do not suppose any of us will be in favour of delay.

Dr. MERCHANT: As far as Ontario is concerned, our greatest need in technical education is the need for teachers. We are strongly in favour of immediate action. In fact, immediate action is a necessity.

The CHAIRMAN: Mr. Campbell?

Mr. CAMPBELL: Mr. Chairman, allow me to say, speaking for Alberta, that technical education is developing rapidly in night schools in the province, and Ontario's need is exactly the need of the province of Alberta. But I may say that there is a field from which we may draw teachers. I had an experience in this city a few years ago. I wanted six teachers for technical subjects, and I secured six very good men. They had not had any special training as teachers, but they had good trade experience, and also technical experience in schools. After these men were appointed I found that all six were from the Old Country and all had been trained in the technical schools there. I am finding the same situation in Alberta. Just recently I selected two men for appointments, both of whom came from Great Britain, both had five years' apprenticeship and three years in a technical college. These men lack entirely the mechanics, or technique of teaching, and do not know how to manage classes, and it seems to me that there should be no delay in establishing an institution—either one or two—to give these teachers the necessary training.

The Chairman: Mr. Macheras?

Mr. Macheras: I have nothing to say.

Mr. Ross: Have we any idea of the scope of the work? What are we going to train men for, in shop work? Is it manual training, domestic science, or what is the scope of the work?

Prof. Gill: That is open to discussion.

The Chairman: The secretary has drafted a second resolution which relates to the same topic as the first. I think we all agree on the broad principle that we should undertake to train our technical teachers without delay. The second resolution embodies a definite plan by which this work may be done. This plan, I believe, has already been submitted to every province by Prof. Gill. I will therefore ask Prof. Gill if he will be good enough to speak to his own proposal and outline the details.

Prof. Gill: Mr. Chairman, from the tone of the remarks of the gentlemen who have already spoken, it is quite apparent that they all have a clear conception as to the necessity of training teachers for this special service, and that they are in favour of resolution 1. The question then is, how is this to be accomplished? I have discussed this problem at different times with representatives of the provincial departments of education, and from the material gathered in these discussions I have formulated a definite proposal which is embodied in the resolution to which the chairman has referred, It will not be necessary for me to read this resolution as there are enough copies available to pass around.

(Copies of the resolution were passed around). Its substance was as follows:

> "Whereas it is agreed by all the provinces that action should be taken to train teachers for vocational work; and
>
> "Whereas this work can be done more economically and more efficiently by interprovincial co-operation than by independent effort on the part of each province, and
>
> "Whereas such co-operative action will aid in the development of a better and broader national spirit.
>
> " Resolved that the provincial representative here assembled go on record as in favour of co-operative action based on the following fundamental conditions:—
>
> " 1. All efforts to be concentrated on one teacher-training institution for the Dominion.
>
> " 2. The site for this institution is to be granted by the city in which it is to be located.
>
> " 3. The Federal Government to assist by providing the money for buildings and equipment.
>
> " 4. The institution to be maintained by Federal and Provincial Governments on a fifty-fifty basis."
>
> " 5. Each province to contribute for maintenance in proportion to its urban population (including towns and cities with over 3,000 inhabitants) as determined by the latest decennial census.
>
> " 6. Transportation of teachers-in-training to be paid for by the school. (The purpose of this is to ensure a fair distribution of the costs of transportation. Under this clause the province of British Columbia would contribute for transportation of the teachers-in-training on the same basis as the central provinces, i.e., on a basis of urban population.
>
> " Ownership of the institution to be vested in a board of governors, with condition that title should revert to the Federal Government in case the property should no longer be required for the designated purpose.
>
> "Administration:
>
> " 8. The governing board to be appointed as follows: Three mem-

bers by the province of Quebec, three by Ontario, one by each of the other provinces and one (or two) by the Federal Government. Members to retain office for three years, arrangement being made for retirement in rotation.

" 9. Readjustments of representation on the board to be based on an allowance of two members for the first half-million of urban population and one additional member for each additional half-million.

" 10. The Board to select its own chairman.

" Special Provisions:

" 11. Institution to have a dual staff—French and English.

" 12. Applicants for admission to the school, from any province, should have provincial approval.

" 13. The provinces to pass necessary legislation. Federal Government to pass concurrent legislation with clause providing that provisions of Act cannot be amended without consent of all of the provinces."

Prof. GILL (continuing): The greatest difficulty in connection with this problem is one of finances. I have no doubt the provinces of Ontario and Quebec can face this problem and solve it with some degree of success, but the smaller provinces will find it very difficult to establish a system of teacher-training and to maintain it on an efficient and adequate basis. Under these conditions the problem, considered from a national standpoint, can be really solved only by co-operation on the part of the provinces. All the provinces may join hands and organize one institution, or they may form two groups, eastern and western, and organize two institutions. The resolution is based on one group only. If the Provincial Governments can agree on some form of co-operative action, I am sure the Federal Government will aid in solving the problem. It has been suggested to me that the Federal Government should organize and administer an institution for this purpose, because it is a national work. This is neither possible nor desirable. The Federal Government may help, but local initiative must not be destroyed. The proposed institution should be administered by a board which is independent of all governments.

The advantages of a central institution as compared with several provincial institutions, are: (1) Better accommodation and equipment could be provided with the money available; (2) A more efficient staff could be maintained; (3) The bringing together from all parts of the country of our future teachers would benefit Canada as a nation to an extent that would be worth all the expenditure involved; (4) It would create a national spirit rather than a provincial one. In this respect it would serve a national purpose quite apart from the immediate purpose of teacher-training.

It is not necessary for me to make any comments on the various sections of the resolution. They require no explanation. Mr. Ross has asked about the scope of this work. It should include the training of teachers to cover the whole field of technical education.

Hon. Dr. THORNTON: Would you define what we are to understand specifically by the term "technical education"?

Prof. GILL: According to the terms of the Act, technical education is defined broadly enough to cover almost any educational effort. The exact meaning of the definition laid down in the Act depends largely on the meaning we give to certain words and phrases. For example, the word "industry" did not include agriculture until a few years ago, and many people still use this word to include manufactures only and do not associate agriculture with it. In the interpretation of the Act we must therefore be guided to some extent by the resolutions, discussions, etc., which led up to its enactment by the Government. The field for technical education can be best defined by eliminating those areas which it was obviously not intended to cover. First of all, the field of agriculture is eliminated because an appropriation was made by the Federal Government in 1913 for the specific purpose of aiding the provinces to give instruction in agriculture. This grant will continue until 1923. Second, the preliminaries to the Act also indicate that this grant was not intended to apply to work of college grade. It was intended to promote work of secondary grade. It was intended primarily to benefit that large body of the youth of our country who drift into life work with not more than the training given in the elementary school. Hence, all professional training or work of college grade has been eliminated. Third, the training of teachers for elementary and high school work is eliminated because adequate provision has been made by the Provincial Governments for this work—at least this is assumed—and, in any case, this work is not industrial.

Speaking briefly, technical education covers the training for useful employment in all occupations, excepting agriculture, academic teaching, and the professions (including nursing). To complete this definition we must specify the age of the boy or girl at which this training may begin. Up to the present the federal department has accepted the limit fixed by the provincial departments. In the existing federal-provincial agreements there is a slight difference in this respect. Personally, I have no definite opinion on this point, but am inclined to favour the limit of fourteen years as fixed by the Smith-Hughes law in the United States. As this point will come up for discussion later, I will say nothing further about it now.

Hon. Dr. THORNTON: We know now what technical education is not. But while the Act may cover all these things, have we certain definite mechanical industries that we are going to give first attention to, in connection with the development of the work?

Prof. GILL: Naturally each province will give first attention to its own particular industries. But the Act will apply to the training of all young people who are, let us say, over fourteen years of age, for employment in any occupation excepting the professions, agriculture and teaching in the elementary and high schools.

Hon. Dr. THORNTON: That is pretty comprehensive. That clears the atmosphere.

Dr. SEXTON: That would seem to exclude pre-vocational work in the schools, with boys and girls between twelve and fourteen who may be trying to discover their aptitudes for certain definite vocations.

Prof. GILL: If the age limit is fixed at fourteen, these pupils will be excluded, but, as I mentioned a moment ago, the federal department has not yet made a definite ruling. This matter has been left, so far, with the provinces. It will, however, come up for discussion under one of the other items on the agenda. I think that before this conference concludes its work we should try to arrive at some definite decision on which we can all agree, and towards which we can work, even if we cannot bring it into operation at once.

Mr. VAUGHAN: Speaking of the teacher-training part, I would like to point out that there are two points in connection with this. It may be left to each Provincial Government, as Prof. Gill says, to determine how far down the scale of age to go; but in the matter of teacher-training, there should be a definite policy for the whole Dominion, and I would like to suggest that the teacher-training should include the training of those teachers who will be engaged in the pre-vocational work, whether or not this work is to receive aid from the federal grant.

Prof. GILL: That is a detail relating to the scope of the work in teacher-training, but the important question to be considered now is, how these teachers are to be trained; whether, first of all, the provinces should undertake this work, each province working separately, or whether an effort should be made by the provinces to get together and co-operate. That is the main question. Once that is settled, the next question, which naturally follows, is the method of training these teachers, incidental to which is the determination of the content of the courses of study and training.

Dr. MERCHANT: Regarding the content and scope of the work, in Ontario at any rate, we can roughly divide those who are working in this field into three groups. First, those who are teaching academic subjects. I am sure we are all pleased to know that, under the provisions of the Dominion Act, we may give those in training in our technical schools a sound training in English as a preparation for citizenship. The second is the group to which Mr. Kyle has referred, the teachers of related subjects—those who teach mathematics, science, drawing and similar subjects related to industry or to commerce. Then a third class, the practical, or shop instructors, who teach the practical work connected with any industry; or, in the case of commerce, those who give instruction in office procedure, typewriting, shorthand, etc. The question to be considered is which groups are to be trained. We already train our academic teachers, yet we still find that many of these teachers require some instruction and some experience in the adaptation of academic work to the requirements of those who are to enter industry or commerce. But it is a question whether such instruction should be provided for in the proposed institution. There is no question in regard to each of the other groups. We find it necessary to train our teachers of related subjects, and many of these come from the staffs of our high schools. High school masters who are to teach related work in any of the subjects that I have mentioned need re-training for the new service. It is conceded that the best teacher of shop work is the practical man who has had an apprenticeship and has proved himself to be a first-class workman. But we find that such a man, even in his own trade, needs some further training, because his experience has not always been broad enough. All such teachers need special instruction in the principles and methods of teaching. In considering the scope and the content of the courses to be provided, we should consider the needs of the related subjects teacher and the practical teacher in all branches for which instruction is to be offered in the vocational schools in the different provinces.

The CHAIRMAN: Gentlemen, we have a large field to cover. I think we should concentrate our attention on something definite, or we may waste a lot of time. My idea in suggesting that a Resolutions Committee should be appointed and that all resolutions that we are to act upon officially should come from them, was to prevent any feeling that the resolutions were cut and dried, prepared in advance and not thoroughly digested. I think it is well to avoid that always. Prof. Gill has, however, drafted a second resolution in sequence to resolution No. 1. Copies of this resolution are before you. It embodies a pretty complete outline of a definite scheme for teacher-training. We might discuss this resolution before we adjourn; then, I would suggest that we adjourn long enough to allow the Resolutions Committee to have a meeting. This Committee will then meet and either endorse this resolution and bring it in as an official resolution, or amend it as they think it should be presented. When it comes before us it will be definite and we can pass upon it very quickly, after this morning's discussion.

Hon. Dr. THORNTON: Mr. Chairman, I sympathise very much with your desire to arrive at some concrete result, and yet I am rather impressed with the idea that the time of this first meeting will be well spent in talking over the subject at large, so that we get a general understanding of each other's point of view, and our opinions then will begin to crystallize themselves of their own accord, without our having to force them down to any specific resolution. We first started with teacher-training. Training to teach what? What are you wanting teachers for? Suppose you had your school up and you are advertising for teachers, what subjects do you want them to teach? We are told by Prof. Gill that the intention of the Act is to cover certain work which is not at present being undertaken—something entirely new, and we have to know definitely what this is. In the province of Manitoba we have practically only one city where ordinary technical education—and I use the phrase in a general way—is carried on. In the city of Winnipeg this work is carried on under a trustee board, not under provincial financing or administration. They are teaching the ordinary commercial courses of shorthand, book-keeping, business training, printing, mechanical engineering, gas-engine work, and matters of that kind. I should imagine that a knowledge of gas-engine work is one of the basic needs of mechanical industry as we know it to-day. The gas-engine is a new development. It was first steam, then electricity, now it is the gas-engine. We are giving gas-engine courses in connection with our agricultural college. If we are to accept for the moment Prof. Gill's statement that under this Act we are providing a series of teachers and providing a school in which to train the teachers to teach something that we are not at present undertaking, are we going to eliminate from this institution the whole matter of, let us say, gas-engine work? I just take that as an instance. I think it would be well for each province to lay down a series of specific subjects which they think might be included, and out of that to arrive at some common understanding. The next thing is to have the teachers; and the third thing is, where to train them. I take it that our views may crystallize very readily into the idea that one school for the whole Dominion, for teacher training, would be the proper solution.

There is another question which is suggested by resolution 2. I might mention it now, without going into the details. There is a suggestion here that in order to give effect to the various proposals set forth in this resolution it will be necessary for the provinces to pass certain legislation. It would be well for us to know to what extent any of the gentlemen here is authorized to commit the Government of the province which he represents to legislation in this matter. That, of course, will not interfere with our deciding upon some proposal which we can submit to our governments, accompanied by a resolution; the object being to secure concurrent action in all our different provinces.

Dr. MacKay: In order to expedite matters, I suggest that we should vote on the preamble and sections 1, 2, 3 and 4, of resolution 2, as containing something on which we are all likely to agree. Section 5 of this resolution appears to contain something that we should consider. For instance, in connection with agriculture, there must be training now for agricultural machinery of various kinds, and I think that in Manitoba and in Prince Edward Island they have to give a course of that kind.

Hon. Dr. Thornton: We are doing that now.

Dr. MacKay: So that possibly it may not be altogether fair to allow the agricultural portions of the country not to count, as mentioned in section 5, in giving a contribution. I think the general principle here is correct, but if we are going to train persons for agircultural machine work, perhaps the rural population might be included, and the contribution might be a little more than would be given by the towns and cities with a population of over three thousand. But at least up to the end of section 4 we may all agree. I would move, then that we give general assent to sections 1 ,2, 3, and 4.

Mr. Fletcher: I think Dr. MacKay's point is very well taken. The agricultural colleges, generally, I presume, are giving instruction in gas-engine work, but they have to have teachers for that work and for special agricultural engineering, and there is to-day no place where the teachers for that work in our agricultural colleges are being trained. If we had one teacher-training centre, we ought to provide agricultural colleges as well as other institutions with specially trained teachers.

Dr. Sexton: It seems to me we want to know first if any of the provinces are planning to establish institutions for teacher-training of their own. Do they feel strong enough, or capable enough, to establish and maintain teacher-training institutions? If not, let us decide that we want to co-operate for a central teacher-training institution. We cannot decide on the details as to whether the city in which it is to be located should give the site or not. We do not want to hang any definite provision like that around the neck of a project of this kind. I think it ought to go to the place where it would be most valuable to the whole country.

Now, about the content of the courses in the teacher-training institution. We are at present faced with an emergency. To meet this emergency it seems to me that the teacher-training institution should be concerned for the most part in training people in the method of teaching, not in giving them the broad technique, the industrial skill, the applied science and shop knowledge of a host of trades or occupations. We shall need some teachers for general continuation classes whom we may have to train to teach with a different purpose and bias, but all they need is some re-adjustment in their vision, their outlook, and some revision of the subjects which they have to teach. Then we shall need other teachers for trade and technical schools with shop knowledge, technical knowledge, and industrial knowledge, whom we shall have to teach how to impart that kind of knowledge and skill to the pupils, so that they may properly absorb it in the shortest time possible. So, it seems to me, the teacher-training institution, to start with, should be an institution which will be mainly concerned with teaching people how to teach, and the people to be taught will already have the basis of their educational and shop training, but will need re-adjustment and re-directing, rather than training from the bottom up.

Prof. Gill: Perhaps, Mr. Chairman, I might be permitted to make a few remarks in regard to the method of procedure. As the Hon. Dr. Thronton has stated, it is impossible for members of this conference to commit their Governments. All this conference can do is to go on record as being in favour of the proposal as outlined in the resolution. If the conference appears to be unanimous, or practically so, in favour of such a proposal, then in my own opinion —and I am speaking not as Director of Technical Education, but as secretary of this inter-provincial conference—the next step would be to appoint a committee to present the resolution to the Federal and Provincial Governments and ask for their approval and co-operation in accordance with the provisions of the resolution. If the Federal Government will not co-operate, obviously no further action can be taken. I think it is reasonable to assume that if the representatives here are in favour of this proposal, the Provincial Governments will give it favourable consideration and the Federal Government will aid. The object in drafting and presenting resolution 1 was to bring the matter up for discussion. It was purposely made broad and without any definite proposal so that all phases of the subject might be discussed. Resolution 2 was drafted for presentation in case resolution 1 were adopted and the discussion thereon indicated that a concrete proposal for co-operative action would receive favourable consideration. As resolution 2 is now before the meeting, I would suggest that it be referred to the Resolutions Committee before being voted on.

Dr. Sexton: We might ascertain, here, Mr. Chairman, from representatives of the different provinces, if they feel that the province they represent could alone support teacher-training, or if they favour a central institution. I imagine Ontario and Quebec, rich, powerful provinces, each with three million people, and with very large revenues, feel that they would be justified in creating and maintaining teacher-training institutions of their own if the proposed central institution is not established.

Hon. Dr. Grant: Speaking for Ontario, I would say undoubtedly.

Dr. Sexton: I am reasonably sure, however, from what I know of my own province, with half a million, that it would be incapable of maintining proper and adequate teacher-training for technical schools, without taking too great a portion of the funds available for that special purpose, and thereby cutting down the balance available to actually give the training to the people whom we want to benefit by technical education.

Hon. Dr. THORNTON: I can say that so far as the province of Manitoba is concerned, we would not at all consider the question of providing our own teacher-training institution. It has not developed with us to the point where we have that demand, although in the development of vocational training we shall require teachers; but not to the extent that we could provide our own training institutions. I might mention here, however, an alternative suggestion. It might be advantageous to establish such an institution for Western Canada, from Fort William west. It is a question whether it would be well to have one institution in the West and one in the East, or to have one for the entire Dominion. So far as the province of Manitoba individually is concerned, we would be entirely in favour of the co-operative measure suggested.

The CHAIRMAN: Gentlemen, with regard to the province of Alberta, I might say that we are establishing a provincial institution of technology and art in the city of Calgary, and one phase of the work to be undertaken by that provincial institution was the training of special teachers for work of this nature. But since this proposal has been made, I am very very willing to abandon that idea altogether, and I can see nothing but advantage, and economy, and efficiency in our foregoing our plan and omitting that part of our programme. I can see other advantages in a national institution besides pure economy; I can see efficiency, and I can see a national spirit and national purpose, controlled by the departments of education of the various provinces. If the day comes when, as Dr. Thornton suggests, two institutions might be preferable to one, no harm would be done. The western provinces can co-operate in this one, which will be ample for our needs for the present, but if the day comes when the western provinces could support another, we can withdraw. In the meantime, the whole of Canada will have developed. I do not anticipate any difficulty in the event of withdrawal, or any unfairness to the general project, if that day comes. But in the meantime, the one institution is ample and it would give us magnificent results. Of that I am sure.

Hon. Mr. GRANT: Mr. Chairman, I quite agree with all you have just said. While, no doubt, Ontario is possibly in a better position than the majority of the provinces to establish a training school of a provincial nature, still, in the interests of all, including Ontario, I would very greatly favour—and all Ontario does—one federal institution.

The CHAIRMAN: Every province has not spoken. Other provinces?

Prof. GILL: New Brunswick?

Mr. PEACOCK: Mr. Chairman, speaking for New Brunswick, I may say that I did not suppose it was necessary to state that we are not in a position to do anything alone. At the present moment the policy of the province is to pay travelling expenses and tuition to those selected individuals who decide to go abroad and attend institutions of recognized standard, on the understanding that they return to the province and teach as we need them. By this means we bring these institutions within the province, as far as the actual working out of the scheme is concerned, and place this work on a par with the other normal school training work, which is carried on at our own provincial institution.

Dr. MERCHANT: Where are these institutions you speak of?

Mr. PEACOCK: In the United States. There is, of course, a reason here—not to speak of other reasons—why New Brunswick would, I think, very heartily support the central institution, providing it did not involve too much expense. The situation in New Brunswick is such that we would certainly not consider the matter of an institution of our own. We have at present a policy which is meeting our needs adequately from the standpoint of efficiency, but perhaps inadequately from the standpoint of sentiment and patriotism. We would very much prefer to send our pupils to an institution within our own country, if this were possible and if this could be worked out so that it would not cost New Brunswick too much in excess of what she is paying at the present time, I feel that there is no doubt the province would co-operate.

Speaking of the training of academic teachers, may I say that in my judgment this point was covered by you when you spoke of the national aspect of this proposal and the national spirit that would be developed at such an institution. It seems to me that the teachers of general subjects would be the very ones that would get this spirit and bring it home to the various provinces.

There is another point which has not yet been spoken of and which I personally find to be one of the most pressing at the present moment. That is the question of training leaders—organizers, who will become local directors in the various towns and cities. The problem of technical education is so complex that it needs the very best kind of leadership, and that is the need, sir, that we are feeling the most at the present moment in New Brunswick.

The CHAIRMAN: May we hear from the representative from Prince Edward Island?

Mr. ROGERS: Mr. Chairman, we have not yet entered upon any vocational training in the province of Prince Edward Island. A school is now being established. It has not yet opened its doors, but, in a few weeks, will start teaching agricultural subjects, and, combined with this, a little in the way of technical education. The effort, so far, is very small. We hope it will develop, however. Needless to say, it would be absolutely impossible for the province of Prince Edward Island to enter upon any scheme of training teachers for that kind of work. It seems to me that, apart from the question of economy, the question of dollars and cents, the matter that has already been touched upon by you, sir, and by Mr. Peacock and other speakers, is one that should appeal very strongly to us, and that is the cultivation of national sentiment. The cultivation of a national sentiment by such an institution as this, appeals to me as a very important feature of such a project.

The CHAIRMAN: British Columbia?

Mr. KYLE: Mr. Chairman, the authorities in British Columbia are fully alive to the necessity of training technical instructors and they agree with the principle of having one Dominion institution for that purpose. In support of such a training school they would be prepared to contribute, provided the conditions met with their approval. In British Columbia the instructors required can be placed under six heads—commercial, engineering, building, mining, forestry, fishing. The Dominion building should be placed in an industrial centre and of course have an efficient staff.

The CHAIRMAN: Quebec?

Mr. MACHERAS (translation by Mr. McLeish): I just wish to state that the province of Quebec is not in a position at the present time to make any decision in the matter, one way or the other. We will have to study the question a good deal before voting either for or against this particular resolution. Unfortunately, we have no authority to act in the matter to-day.

The CHAIRMAN: Saskatchewan?

Mr. BLACKLOCK: In Saskatchewan, I suppose we are further behind than any other province, so far as technical education is concerned. We have established no technical institution. We are endeavouring to do a certain amount of vocational work in our existing institutions, the secondary schools. I suppose none of us has any authority to commit any Government to any particular scheme, but it seems to me that the only practicable scheme is that of one central institution for the training of teachers. There is one matter that is agitating the minds of those engaged in educational work in Saskatchewan. We receive from the Federal Government a certain sum for the encouragement of agriculture. Now, agriculture is the main industry in Saskatchewan. Seventy-two out of every one hundred persons in Saskatchewan live on the farms; and I can quite understand any Provincial Government such as the Saskatchewan Government hesitating to commit itself to any large financial scheme which is for the purpose of benefiting only the people in the urban districts, which I understand this has in view. I was hoping—and I believe the minister expressed himself that way a short time ago—that the federal grant for agriculture and the grant for technical work would be combined, and that each province should have the option of placing the emphasis on the vocation most common to that province.

Hon. Dr. THORNTON: Mr. Chairman, would you allow me to say a few words, because Mr. Blacklock has expressed what I was trying to get at previously—the definition, the basic expression of our situation in relation to vocational training. It is a question which I wish to put in the minds of the members of the Resolutions Committee, when they get together, so that they might have something to propose or to say in connection with it. I have just been wondering how much federal grant for this purpose the different provinces here have been able to utilize in the year so far gone, or will be able to utilize in the next two or three years, in order to take full advantage of the conditions of this proposal. It will require a year at least to build a school, and three years' training will be required before you get any of the teachers out of that school. Obviously, in the meantime, you have to make temporary arrangements for getting such teachers as you can, to meet the situation. I would like to hear our friend, Mr. Campbell, from Alberta, speak on this point. He said that he had six teachers who came from the Old Country. I would like to know if they came from the polytechnics.

Mr. CAMPBELL: Yes, from the polytechnics.

Hon. Dr. THORNTON: I would suggest that until such time as we turn out Canadian teachers from our own Canadian schools, the polytechnics and training institutes of our own motherland will be the very best places to get such as we need in carrying on. But, in the meantime, we must develop an organization of our own, and this will grow gradually in the different provinces. In Manitoba we are going to leave unexpended a great deal more of the federal grant than the twenty-five per cent which may be carried on from year to year. Naturally this work has to develop. In Ontario, I have no doubt all the federal grant will be taken, and perhaps more would be taken if it were available; but I doubt if there is any province outside Ontario and perhaps Quebec, where they have not found themselves rather embarrassed in trying to spend the money before they have been able to plan what they want to do with it. With regard to Mr. Blacklock's suggestion regarding agriculture, I certainly would be very much pleased if the Dominion authorities would accept agriculture as a vocation within the terms of the Technical Education Act. I am quite agreeable, however, so far as this conference can recommend it, to urge the adoption of one institution for the training of teachers.

Prof. GILL: The question of the carrying over of the 25 per cent of the federal grant, to which Dr. Thornton has referred, is one which should not give rise to any anxiety at present. I think I have already assured the various provincial directors, or those officials with whom I have been dealing, that for this year, and probably next year as well, the whole of the unexpended money will be carried forward.

Hon. Dr. THORNTON: Thank you Mr. Gill. I just wanted you to say that.

Mr. CAMPBELL: That is provided for by the Act?

Prof. GILL: No. it is not in the Act. It is in the Act that 25 per cent is carried forward automatically; but the minister has power to carry forward any amount.

Mr. CAMPBELL: I would like to make one statement with reference to those teachers referred to by Dr. Thornton. I may say that in no single case was any one of these teachers prepared as a teacher; he was simply a high grade trade man who had taken training in one of the colleges. Two of the men came from the Glasgow Technical College. To be trained as teachers these men should have to go to a training school established for this purpose. I may say that the question of technical education in Alberta is the same as in Saskatchewan or Manitoba, or any of the other provinces. As has been pointed out, technical education is necessary for the farmer. In my opinion there is no man who uses machinery to a greater extent than the farmer. There is more power used in farming to-day than in industry itself; and the machinery that the farmer uses has as its basis just exactly the fundamental principles that are found in all machinery; there are the lever, the gear, the pulley, etc. It seems to me, therefore, an effort might be made to get technical education for farmers' sons in small centres, and not altogether in the larger centres, and give them farm forging, farm carpentering, and gas-engine and tractor work along practical lines. Notwithstanding that this is being done in the agricultural colleges, why could it not be done in smaller centres and come under the Technical Education Act? I would like to know from Mr. Gill whether, if that kind of work were done in the West in small towns, a grant would not be paid for it?

Prof. Gill: In reply, I would suggest to Mr. Campbell that he first work out a scheme, and if it receives the approval of the provincial Minister of Agriculture, then I will be ready to discuss the proposal with him.

Mr. Campbell: I may say that we have in the province of Alberta two private schools which are conducting courses such as I have mentioned; perhaps not farm forging, but they are certainly running a course in gas-engine and tractor work and on other subjects that are related to it, like tire repair, storage battery and other work of that character. In one city in Alberta these two private companies are in existence, and last year one, so they told me, had 250 students enrolled. These men do not go either to the agricultural colleges or the university. They are farmers who might be attracted to a class established especially for young men on the farms. It seems to me that this is one of the finest types of technical education one could present to the people in the province.

Hon. Mr. Thornton: Might I supplement Mr. Campbell's remarks, because I am aware that my suggestion brought them out? In Manitoba at present, in connection with our agricultural colleges, we have a regular gas-engine training establishment, with all the necessary machinery. Besides the regular agricultural course, there is, during the winter and in the summer too, a special gas-engine course of, I think, six weeks' duration, and it is open to everybody in the province to get that training. In addition to that, we carry the school to the people by sending out teachers to little towns during the winter, and these teachers stay there three weeks at a time and hold sessions mornings, afternoons, and evenings, and the people from the town and from the farms come in and get the benefit of that vocational education. But so far our definition of vocational training, or vocational education, forbids Mr. Gill to give us any financial assistance for the development of that kind of education.

Dr. Merchant: Are you not getting a grant from the agricultural fund for that work?

Hon. Dr. Thornton: Yes, but it is being used for boys' and girls' club work, and things of that kind; devoted purely and simply to agricultural purposes outside the mechanical work.

Dr. Merchant: There is no doubt about the field for that work. The question is as to whether or not this work was supported by the federal grant for agriculture.

Mr. Fletcher: It is in a good many cases, perhaps.

Dr. Merchant: I put the question definitely because that is work which is supported, as I understand it, from the federal grant, and I can easily understand that we could scarcely ask for a grant from another department of the

Federal Government when it is already being supported by federal money.

Mr. Fletcher: There is a phase of work being done in the western provinces concerning which we are not quite clear that it comes within the scope of this Act for a grant. We are developing manual training circuits, and along that line the manual training instructor usually puts in one day a week in each centre or school, and he holds in that centre evening classes, mainly for farmers' sons and young farmers; that is, classes in bench work and in forging and blacksmithing, which is purely vocational work. These are not classes for the townspeople; these classes are put on for the farming community, and the work is carried out along lines which will be of use to the man on the farm. That is really vocational work, and the expense of it ought, it seems to me, to come within the scope of this Act; and yet it is not quite clear that it does.

Hon. Dr. Thornton: The situation appears to be this. The Dominion Government offers us $1,000 if we will spend $1,000. We say "Here is something we are developing and spending $1,000 on. Let us take your $1,000 to supplement it. You are calling upon us to make a new expenditure when we are already developing along that line in connection with this work. We think this should cover it and your assistance should go to help us to develop it." We have not been able to get Mr. Gill to see it from that point of view. I am glad to hear what Mr. Campbell has to say, because I think it reinforces our position, and perhaps the other provinces, too, have problems similar to what we have.

Prof. Gill: It is simply a question as to whether or not this work is agricultural education or training. Any source of instruction for boys which fits them for employment in the pursuit of agriculture is obviously agricultural instruction. If these classes are admitted as coming within the scope of the technical education grant, it is only a step farther to the point where the whole field of agricultural education would be included.

The Chairman: I would suggest that we concentrate our discussion on the resolution for a few minutes longer. We are now at section 5.

Mr. Fletcher: What about section 5?

The Chairman: I am presuming that the Resolutions Committee has sensed the feeling of this conference pretty well on this section.

Hon. Dr. Thornton: Let me suggest that the sentence in regard to the preamble, "Whereas it is agreed by all the provinces," might be worded to read: "Whereas it is agreed by the representatives of the provinces here assembled," so that when the resolution as a whole is finally passed we will be safeguarded. Otherwise, it is all right down to section 5.

The Chairman: So far as section 5 is concerned, it does not settle what work may be benefited by this scheme. It settles only the point as to how the cost of maintenance would be divided between provinces.

Dr. Merchant: To meet the objection which has been made by the representative from Saskatchewan, and which may be made by others, the larger part of the burden of maintenance is placed by section 5 upon the provinces which will benefit most by the proposed institution.

The Chairman: Yes. We must not forget that this proposal does not include benefits for the agricultural population on the same basis as the urban population, otherwise we would also change the basis upon which the cost of maintenance shall be calculated. If agriculture were included, Alberta, Saskatchewan and Manitoba being agricultural provinces, would be called upon to pay two or three times as much as they would under this scheme.

Dr. Merchant: Yes. We should have a clear understanding of that fact while discussing this section, because the real purpose of this section is to take the burden from the provinces where agricultural work, rather than industry, has been developed.

Dr. MacKay: Of course, we could make an accommodation between the cities and the country by distributing one-third of the expenditure according to the rural population, or the population of the province as a whole; or one-half, according to the population of the province as a whole, and the other according to the towns and cities having over 3,000.

Dr. MERCHANT: I might call attention to this fact, that this will be expenditure for maintenance only. It is suggested that the Dominion Government should put up the building and equip it. Consequently, if the scope of the scheme were changed at any time, the basis could be changed any year and no money would be lost by any province.

The CHAIRMAN: Until such time as the basis is changed, until such time as the agricultural grant is discontinued, or differently appropriated, nothing will suffer.

Dr. MERCHANT: No.

The CHAIRMAN: I think in the meantime this might be accepted, and when the time comes that the grant in aid of agriculture is consolidated with the grant for technical education or placed upon a different basis, or placed at the disposal of the departments of education instead of the departments of agriculture, until that time comes, there is no great difficulty.

Dr. SEXTON: It is important that we should thoroughly discuss the details about maintenance costs. Is there anybody here who is prepared to say that the provisions of section 4, whereby each province is to contribute for maintenance in proportion to its urban population, will distribute the burden fairly upon those provinces in which agriculture is the main occupation of its people and manufacturing industries still in their infancy? It would seem that a province like Ontario, or Quebec, where technical education has been developed to a fairly high degree will probably select and forward to the teacher-training institution many more students in proportion to their population than a province, say, like New Brunswick, or Nova Scotia, or Saskatchewan. This would mean that the maintenance cost of the central institution will be largely expended for training teachers for Ontario and Quebec. The provincial costs ought to be more on the basis of the number of students sent than on the basis of urban population.

The CHAIRMAN: You think it should be based on the number of students enrolled from each province?

Dr. SEXTON: Yes, rather than according to the urban population; because some provinces cannot develop their plans for technical education as fast as some others. The financial contribution of each province should be based on the service rendered. This would be entirely just. It is proposed that the travelling expenses of students should be pro-rated. Why not the whole cost of training? This is said in no spirit of criticism, but you cannot tell to-day whether a provision, such as is outlined in section 4, would be either an extra burden on some of the smaller provinces or some concession to them.

The CHAIRMAN: Since the urban population in Quebec and Ontario is very much in excess, in proportion to total population, of that in other provinces, the main burden will fall upon these provinces; and if they do send a larger proportion of students than others, they are paying.

Dr. SEXTON: That is the natural supposition, but I do not think anybody is prepared to say exactly how that will work out, and it would seem that the fair charge is in proportion to service rendered.

The CHAIRMAN: It would vary each term and would not be easy to compute.

Mr. PEACOCK: It could not be computed beforehand.

Hon. Dr. THORNTON: It would be necessary to agree on a provisional amount that would be contributed each year, and then at the end of the year there would be an accounting for the cost of maintenance for that year.

Dr. SEXTON: That is what I would have adopted as a fair system of distributing maintenance costs.

Dr. Merchant: The difficulty in determining the maintenance cost on the basis of the number of students, is that the number of students would change from year to year. Our legislature votes its estimates in advance. How are we to know a year and a half in advance just what our share would be?

The Chairman: There is another consideration, Dr. Merchant. The student may be from Ontario. He may train and then go and teach in Alberta. You cannot tell who is going to get the benefit.

Dr. Merchant: You are quite right. The only way we could work on that basis would be for one of the provinces to organize an institution and let the other provinces pay for the tuition of their students. To all the benefits you so well pointed out in the beginning of the discussion it seems to me we must have some permanent basis of support.

Dr. Mackay: I am afraid all our trained teachers would go to Alberta.

Dr. Sexton: I cannot see that there is any more difficulty in distributing the cost on a per-student basis, after each term or each year, than there is in determining how much the Dominion Government will grant to the provinces for work on technical education.

Section 12 provides as follows: "Applicants for admission to the school from any province should have provincial approval." It would appear that the central institution, instead of opening its doors wide, and trying to entice within its portals, for training, as many persons as it is possible to get, will have the selected clientele that would be selected and recommended to it by provincial authority.

Dr. Merchant: The two things go together. This question of support is a basic one.

Dr. Sexton: Dr. Merchant speaks as though it is a foregone conclusion that a central teacher-training institution could be more or less easily established, and that there would be little difficulty in securing the co-operation of the provincial authorities. It is a delicate and involved question, and if the governing body were not thoroughly representative, and if the costs were not distributed in a fair manner some province would find fault and withhold its support, The provincial educators, who work in an unbiased manner for the greatest good differ in their motives and viewpoint from the politicians in these provinces, who control the policies and purse-strings, and it seems to me we would have to be careful about the basis on which we tried to secure provincial support for this proposal.

Mr. Peacock: Has any estimate been made of the probable cost of administration?

The Chairman: Yes, I think there has been an estimate made of the probable cost of administration.

Prof. Gill: With a dual staff I think it would probably amount to $200,000 when it is fully developed. Dr. Merchant would have a better idea than I have. I have not gone fully into the question. Regarding Dr. Sexton's remarks, I would like to say that in trying to discover an equitable basis for apportioning the maintenance cost, all the various possibilities were canvassed, including those suggested by Dr. Sexton, and the most suitable and most satisfactory one seemed to be that which is outlined in the resolution. I have made an estimate of the urban population of the various provinces and will present the figures at a later meeting.

Mr. Vaughan: Regarding the method of distributing the maintenance cost proposed by Dr. Sexton, I would like to state that I would just as soon teach three students at a time as one student, and that it would be a very unfair basis. If you have to maintain an institution, it costs just as much to keep it running for a small number of students as for three times the number.

Mr. Rogers: It would discourage Provincial Governments from sending students to the school. I think that should be avoided because, as I understand it, the object of this proposal is national. Its purpose is to promote technical education from a national standpoint. Anything that would lead Provincial Governments to discourage sending students should be avoided.

The CHAIRMAN: The benefits to be derived by a province will depend, not upon the number of students it sends, but upon the number of teachers it captures.

Dr. SEXTON: You will find that most of the provinces will have to offer definite and liberal financial assistance if they wish their technical teachers to be trained. The cost of instruction in the teacher-training institutions will not be nearly as much as the cost of the direct aid to selected candidates. If the provinces spend money directly on candidates they will have to be under contract to return to their respective provinces to teach at least a year or two years.

The CHAIRMAN: I think this point has been pretty well threshed out. Let us now consider sections 7 and 8. Section 7 reads as follows: "Ownership of the institution to be vested in a board of governors, with condition that title shall revert to Federal Government in case the property should no longer be required for the designated purpose."

Dr. MERCHANT: There may be a difficulty there, Mr. Chairman. I do not know how it can be solved. Sections 2 and 8 really go together. If the city supplies the site, is that site to be held by the city or by the board of governors? And who will own the site in case the Federal Government should take over the building? This is a real difficulty which we must face. When we approach a school board, the question of the permanent ownership of the site will be raised.

Hon. Dr. THORNTON: The resolution here suggests that the site for the institution be granted by the city. Would it not be better to use the word "donated"?

Mr. FLETCHER: The city should donate the site and then there would be no question.

Dr. MERCHANT: That does not settle my problem at all. Who would own that site?

Prof. GILL: The ownership of the whole property is to be vested in the board of governors.

Hon. Dr. THORNTON: Suppose we amend this to read: "The ownership of the site and of the institution to be vested in a board of governors."

Dr. SEXTON: Why make a definite condition of location that some city shall give a site? This is a comparatively small matter as compared with the importance of having the institution located in the best possible situation. If you can get a free site from some city take it; if not, buy it.

The CHAIRMAN: I think section 2 should be deleted.

Hon. Dr. THORNTON: Yes, strike it out. It is desirable, but not fundamental.

Mr. VAUGHAN: From the standpoint of convenience and usefulness the fundamental thing in connection with the site is to have it in the neighbourhood of the best co-operative agencies in the district, regardless of what the ground may cost.

Dr. MERCHANT: Would the question of a site not be a matter for the board of governors?

Hon. Dr. THORNTON: But whether the city donates the site or not is another question. There is no harm in asking them.

Dr. MERCHANT: We should either drop the idea of asking the municipality for a site or drop this clause regarding the reversion of title to the Federal Government.

Dr. SEXTON: Since we cannot thresh out this whole matter, I move that we adjourn until after luncheon.

The CHAIRMAN: Shall we ask the Resolutions Committee to have a meeting in the meantime.

Mr. Campbell: I move that the discussion be continued before the Resolutions Committee takes any action.

The Chairman: The motion is that we continue our informal discussion on Resolution 2 before asking the Resolutions Committee to meet.

The motion was agreed to.

The conference adjourned until 2.45 p.m.

Second Sitting, Monday, October 25, 1920

The Conference resumed at 3 p.m., Hon. G. P. Smith in the chair.

Teacher Training (continued).

The Chairman: Gentlemen, we have with us a new member of the conference, the Rev. Father Tessier, from New Brunswick.

Before we adjourned, I think, we had reached the consideration of section 7. If the matter of a donation of a site is left entirely out of the resolution, then section 7 may be accepted. I suppose it is a perfectly fair proposal, that if the Federal Government pays for this institution it shall revert to the authority that paid for it in the first place in case it ceases to be used for the purpose for which it is established. We may, therefore, pass on to section 8, the consideration of the constitution of the Board of Governors.

Hon. Dr. Thornton: There is just one thing in the formation of the board which is somewhat indefinite. The resolution provides for " one or two representatives of the Federal Government on the Board," in addition to the provincial representation. I would be disposed to suggest that the federal representation should be two, with the stipulation that one of these should come from west of the Great Lakes and one from east of the Great Lakes. This would give the Dominion Government a better balanced representation than if they were limited to the selection of one representative on the board.

The Chairman: Is there any objection to that proposal?

Section 8 agreed to.

The Chairman: We will now consider section 9.

Dr. A. H. MacKay: Why should it not be one member for each quarter-million instead of two for half a million?

The Chairman: The original board would have at least half a million for its basis; with three from Ontario, that would be more than half a million

Hon. Dr. Thornton: Do you think it is wise, Prof. Gill, to bother about the details of additional representation at this stage?

Prof. Gill: That is a matter for this conference to decide.

Hon. Dr. Thornton: I have no doubt that if this institution is established there will be a conference every year or so, similar to what we have to-day, and the matter would come up at that time, and this question would then be carefully considered.

Dr. A. H. MacKay: I think that is a good idea.

The Chairman: We will leave that to the discretion of the Resolutions Committee.

Section 10 agreed to.

Section 11 agreed to.

The Chairman: We will now consider section 12.

Hon. Dr. Thornton: That will have to be amplified a little in the wording. "Applicants for admission to the school from any province should have provincial approval." That should read, "Applicants for admission to the school from any province should have the approval of the Provincial Department of Education."

Section 12 agreed to.

Section 13 agreed to.

PREVOCATIONAL CLASSES AND VOCATIONAL GUIDANCE.

The **CHAIRMAN**: We will now discuss item No. 2 on the Agenda, " Prevocational Classes and Vocational Guidance," and I am going to ask Dr. Merchant to open the discussion on this topic.

Dr. F. W. **MERCHANT**: Mr. Chairman: Prevocational work interests us at the present time for two reasons, first, as a type of education to be provided through our school organizations, and second, because we desire to know whether it is to be supported by the Dominion grant. At a certain time in a child's life there should be brought before him in a practical way types of the various activities and vocations that are open to him, because it is believed they furnish a necessary content for education, and at the same time such a course of training opens up opportunities for him to choose a vocation. We know that when a child reaches eleven or twelve years of age, a restlessness comes over him that tends to make him leave school, and we believe that this type of education will help to hold a larger proportion of children at school. May I say, just in passing, that I believe there is a good deal of truth in that contention. Yet, I am convinced that, prevocational training or no prevocational training, there will always be a large number of children who will wish to drop out of school, and that the only solution of the problem of securing the education of all the children is through some form of compulsory training that covers the years of which we are speaking.

Now, what type should that training take? It goes without saying that we should have a good academic training furnished to all children in prevocational schools. It goes without saying, also, that if the education is to be really of a prevocational character, there should be furnished for the child opportunities for participation in a variety of basic industries. How is it to be done? There are two or three different schemes that have been in operation in different countries. One is the organization of special schools for this purpose. Such schools are established in connection with the schools of Great Britain. These schools are known as central schools. The children from eleven to fifteen years of age are here brought together and given a training with a definite bias towards industry or commercial occupations. In the United States such schools are known as junior high schools. In Ontario our organization has proceeded along somewhat similar lines. We allow children who have completed the sixth grade and have been promoted into the seventh grade to attend our industrial and technical schools, and in these schools we provide for prevocational work. We have, as yet, in Ontario no prevocational schools organized apart from the technical, industrial and commercial schools of the province Which is the better type of prevocational school? I am not prepared to say. There are arguments in favour of each type of organization. The combined school has this in its favour: it provides opportunities for the prevocational pupils to observe and take part in a wider range of vocational work. I had my attention called to this feature a few days ago in a technical school at Milwaukee. This school had been at one time a trade school for boys. Its field was later extended to include technical high school courses and prevocational classes. As we went about observing various departments of the school, the principal called our attention to the fact that the prevocational boys were taking part in machine-shop work in a real machine shop; similarly with woodworking in a real woodworking shop; also printing in a fully equipped printing department, and all under trade conditions. As I have said, in Ontario we have so far committed ourselves to the organization of prevocational work in connection with other classes. I mention this for the reason that if it should be decided that grants could be paid only to prevocational schools that were separate institutions, we could not qualify.

What is the character of the work that should be given? It should be typical of all the industries. The principal of the Milwaukee school expressed a real truth when he said that the boys should observe and take part in work under productive conditions. He drew a sharp distinction between such work and manual training. One of the questions that has been mentioned here is what is the relation of manual training to prevocational instruction? Where prevocational schools are organized as separate institutions there is a tendency for the practical work to take the form of manual training exercises. I am not saying whether this is a good thing or a bad thing, but if separate prevocational schools are approved we shall be faced with the problem of drawing a line between manual training and vocational work.

In conclusion, I take it we all favour prevocational work of some type. We are all agreed that in these prevocational schools there should be furnished a good general education, and that there should be wide range of vocational work.

Dr. MacKay: What is the age limit?

Dr. Merchant: We have no age limit for admission to our schools. The admission test is purely an academic one, promotion to the fourth book or seventh grade.

Dr. MacKay: Will prevocational training be finished before the high school?

Dr. Merchant: Not altogether. With us the pupil goes from the prevocational class into the vocational class; he is carried forward in the same building with the same instructors. There is no sharp distinction made between the one type and the other. That is why our work would be very much upset if we had to separate sharply the prevocational work that we are carrying on from the work that is strictly vocational in character.

As to the second of the questions proposed, that of vocational guidance, we have made no organized effort in the province in this direction. Certain teachers, especially in our vocational schools, have incidentally been vocational instructors and have helped boys to select occupations and have aided in placing them in specific employments; but we feel that the teachers in public schools, high schools and even in technical and industrial schools, are not properly trained for this work. We have come to the stage in which we are thoroughly convinced that we should have some organized agency for this special purpose in all our larger cities. We have reached this conclusion not simply from theoretical considerations, but we are faced with a practical problem in Ontario. The Adolescent School Attendance Act is to come into force and operation by stages, beginning next September, and the question of leading the young people into the proper type of work and the proper type of training for work is going to be a question of great magnitudewith us. What should the work of such an agency be? It seems to me this work is five fold. First, it involves the special study of children, to find out what they are really fitted for. We have been studying the child to find the best methods of teaching him, but we have made no effort in a systematic way to study the children with the object of discovering what they are fitted for in vocations. Second, it involves a study of vocations with the object of finding out and making public the opportunities in employments open to the young people. The Department of Soldiers' Civil Re-establishment in their re-education campaign have done a good deal of work in this direction, but the children in our schools have not as yet profited by the results. Third, vocational guidance involves a study of the means that are available for training children for vocations. What is needed is a bureau equipped to give information and counsel to children and parents on the questions I have mentioned. The chief function of such a bureau, it seems to me, should be that of counselling. I use the word "counsel" advisedly, because I do not believe in direction. The leading fact to be taken into consideration in dealing with a youth choosing an occupation is the fact that he is a self-active being and that his vocation should not be fixed for him but that he should choose it. The service of such a bureau should be to present all the facts in such a way that those concerned would have the means for making an intelligent choice. It is a question not of the determination but of the choice of a vocation, and the bureau should be in a position to give help but not direction. Fourth, vocational guidance should lead to placement. Such a bureau might act also as a placement bureau. We have placement bureaus already, as Senator Robertson has said, for the returned soldier and for workmen in general; but it seems advisable that a systematic effort should be made to assist the youth on leaving school to find suitable employment. Fifth, vocational guidance should include follow-up work within vocations, especially with the view of keeping the young in touch with the means that they have within their choice of improving their training and their opportunities for advancement. It seems to me that for these five distinct functions the organization of a bureau or department of vocational guidance is advisable.

The CHAIRMAN: I should like to ask Dr. Merchant with regard to enforcing the new age limit in Ontario for vocational classes, what are the prospects of compulsorily enforcing it?

Dr. MERCHANT: Our Adolescent School Attendance Act has three requirements. First, it requires an extension of the age for all children from fourteen to sixteen years of age. An exception is made when a parent or guardian can prove to the satisfaction of an attendance officer that the services of a child are really needed for the support of himself or his family. Such child may go to work for somebody else or work at home on the condition that he secures a work permit if he is working in some gainful employment or a home permit if he is to work at home. The second provision requires adolescents between sixteen and eighteen to attend school 320 hours per year, unless they have been in full-time attendance at an approved school up to sixteen years. They are also free from the provisions of this section if they have reached matriculation standing at the university.

The CHAIRMAN: Regardless of age if he has reached matriculation standing?

Dr. MERCHANT: Yes. He is free even under the first condition, if he has reached matriculation standing.

The CHAIRMAN: Who has the decision as to whether he is needed at home for support?

Dr. MERCHANT: The attendance officer determines that.

Mr. PEACOCK: Is he a provincial or local appointee?

Dr. MERCHANT: He is a local appointee, but acting under the provincial attendance officer.

Dr. THORNTON: What type of men will you have acting as attendance officers?

Dr. MERCHANT: This Act was just passed a year ago, and has not come into operation as yet. I am not sufficiently familiar with the men applying to answer your question. I could give the desirable characteristics, but what the men really are, I do not know.

Dr. THORNTON: It occurs to me that if you place the decision in the hands of the average attendance officer you are not liable to have just the proper decision as to qualification.

Dr. MERCHANT: That is quite correct, and I imagine in the beginning some of the men will not be the men we need. But we have a provincial attendance officer whose business it will be to visit these attendance officers and to inquire into the effectiveness of their work.

Dr. MACKAY: Will these officers be appointees of the school board?

Dr. MERCHANT: Yes. This attendance officer's business is not only to administer the Adolescent School Attendance Act, but under him also comes the administration of the law for attendance up to fourteen years of age.

Dr. THORNTON: When will the changes come into effect?

Dr. Merchant: I shall tell you about that later. I think I forgot to say that pupils between fourteen and sixteen who are granted home permits or work permits are required to attend school 400 hours a year where part-time schools are established. The third provision of the Act makes it necessary for all municipalities with a population of 5,000 or over, to establish part-time schools. Briefly, part-time education must be provided, first, for those between fourteen and sixteen, to whom are given work permits or home permits, and second, for all between sixteen and eighteen who have not been in full-time attendance at school up to sixteen years of age or who have not reached matriculation standing; all municipalities with a population of 5,000 or over must establish part-time schools for these two groups. Regarding the date of operation, I may say that the provision for the extension of the school age from fourteen to sixteen comes into operation in September 1921; the provision for the extension from sixteen to eighteen comes into operation in 1923, and the provision requiring schools to establish part-time education comes into operation in September, 1922. These are the requirements of the law. We recognize that under present conditions when schools are crowded and building is expensive, we shall have difficulty in bringing it into operation. This is what we have in mind to do. We think it is useless to delay for two, three or four years efforts for putting it into effect, because school boards at the end of these periods would probably be in the same condition they are in at present. Unless there is some pressure from somewhere they are not likely to provide buildings ahead of time. A certain amount of pressure will have to be applied before they will begin to do anything. We propose to endeavour by September 1, 1921, to have our attendance officers in all these various centres organized, and to have our work in connection with these officers so far perfected that we shall round up all the children between fourteen and sixteen and make it certain that they are either at school or at work. But we propose to place no restriction on the issuing of work permits or home permits in the beginning. But at the same time we propose to see that the various industrial firms, departmental stores, and other establishments employing juvenile labour, secure permits for all workers under sixteen. In other words, we will be in somewhat the same position we are in to-day except that we will have trained the people of the province to understand that there is a necessity for clearly recognizing that children between fourteen and sixteen are expected to be at school, and can be at work only by permission, but we do not propose to bring special pressure, in the beginning, to bear upon the youth between fourteen and sixteen to force them into the school. Pressure will be increased as the school accommodation is provided, and industries become adjusted to the new conditions. In the meantime the department will carry on an educational campaign. Departmental officers will meet school boards and explain the provisions of the Act, and the courses to be provided; also the accommodation and equipment needed, as well as any other question relating to the operation of the Act.

Mr. Peacock: Does this apply to sections of less than 5,000 population?

Dr. Merchant: To all communities, but there is no obligation placed on those municipalities to provide part-time education.

Mr. Kyle: Who are admitted into your prevocational classes?

Dr. Merchant: Anybody who has reached the standard.

Mr. Kyle: What age?

Dr. Merchant: No age requirements.

Dr. MacKay: Is the attendance age the same for the rural schools as for the urban schools

Dr. Merchant: That section of the Act which refers to pupils from sixteen to eighteen does not apply to any municipality except those with a population of 5,000 or over.

Dr. Thornton: The section which refers to pupils from fourteen to sixteen applies to every place?

Dr. MERCHANT: Yes.

Dr. MACKAY: As regards the small ungraded school or miscellaneous school in the country, to what extent is the compulsory law the ordinary rule of the school?

Dr. MERCHANT: I am not now in a position to give an answer to that question. I can tell you about the condition ten years ago when I was chief inspector. A fair proportion of the children attended school, but this attendance was not secured by application of the law.

Mr. KYLE: After students in the prevocational schools have attended full time, do you find many of them decide what vocation they are going to follow?

Dr. MERCHANT: In war time our difficulty was to get anybody to go beyond the prevocational stage, because there was such a demand for young people that they went directly into employment. The proportion that I should give you as based on our experience would be altogether unfair because conditions were abnormal.

There is a question relating to prevocational work that I did not touch, and it is important. We in Ontario have made no effort to give prevocational instruction to all children, only to those who care to come to our technical schools. The city of Buffalo has decided, I believe, to establish twelve or fourteen junior high schools so that all their children will go through this type of school before going into the high school. Theoretically this would be the ideal condition. We have not reached that stage of development.

Mr. PEACOCK: What fraction of the pupil's time is devoted to what might be termed vocational training?

Dr. MERCHANT: Fifty per cent.

Mr. KYLE: Prevocational classes were started some years ago by the Vancouver Board of School Trustees, but financial difficulties and want of accommodation compelled them to close down. In British Columbia retarded pupils are of two classes: those who are backward through lack of ability, and those who are retarded owing to the movements of their parents. A considerable number of the pupils who had reached leaving age were found in the intermediate grade classes and these were placed in a school where they spent fifty per cent of their time in hand-work. Many who would otherwise have left school attended the second year's course and some even for a third year, but at the end of that period the classes were unfortunately discontinued. At the end of the first year it could not be said that any great number had decided on a vocation, and even at the end of the two years very few had clear ideas as to what they intended to work at when they left school.

Dr. MERCHANT: We have not had any difficulty at the end of our preliminary course, which is supposed to extend over two years, in getting students to select their fixed classes for the third or fourth year. There are certain classes which they select in preference to others. Our only difficulty has arisen from the fact that we have not had any vocational counsel. Too many young people choose machinery or automobile work, and very few select woodwork of any form.

Mr. KYLE: In British Columbia we are working towards the same condition as you have in Ontario. When prevocational pupils go to the technical school they are placed in a separate class.

Dr. MERCHANT: That is interesting. I have quite an open mind.

Mr. KYLE: It is necessary to go to a technical school with such classes because the equipment for vocational work is there, and while I have stated that the Vancouver prevocational classes have been discontinued, yet one can see signs of a revival of the idea both in Vancouver and Victoria. New Westminster included forty-two boys this year in their technical school who were leaving the elementary school to begin work. Those boys had failed to pass the entrance examination into high school, but a test in arithmetic, English, and drawing was given and all but fourteen were successful in passing it, and were consequently placed with the technical students. The fourteen pupils who failed were placed in a class by themselves, in order that they might have special attention and ultimately undertake the studies of the technical course. Fifty per cent of the time of those fourteen pupils is spent at shop-work and they form the prevocational class. It will therefore be seen that in British Columbia the prevocational class is intended for retarded pupils.

Dr. MERCHANT: All that you have said is most interesting. Prevocational work with us is not intended for retarded pupils. Practically its purpose is to attract towards industry a very much larger proportion of the bright young people. In the beginning those who came to our schools were not the brightest pupils, because the public school teachers seemed to think that in a sense the schools were intended for dullards. Possibly we who have been promoting technical education are somewhat at fault because we have been pointing out that our schools open an avenue for the student who has not been getting along in the public or high school. It is true that they do open up an avenue for these students, but our schools are not organized for this type only. We began with such students, but we are now attracting a fair proportion of the bright boys and girls.

Mr. FLETCHER: You will find some of the pupils in the technical schools who are forging ahead. I have had a little experience in Winnipeg recently bearing on this subject. Some three or four months ago a number of us constituted ourselves into a committee to look into the question of juvenile employment, to see what our young people of thirteen or fourteen years of age were doing, what occupations they were entering, whether they were finding their way into occupations leading somewhere, or whether they went in aimlessly. Our committee was fairly representative, including some of the leading representatives of labour in the city, some of the leaders in education, some members of the employment service of Canada, and we had the assistance, through the courtesy of the employment service of Canada, of Mr. Wyatt, who is connected with the head office of the employment service in Ottawa. Mr. Wyatt came to Winnipeg and stayed with us some six weeks or two months, and took charge of a survey for us. We got information from the employers and from the young people themselves. We found the employers very sympathetic; they gave us help in every way. We received replies from a large number of the young people, and as a result of that survey we decided to approach the Minister of Agriculture in the Provincial Government with a request that a vocational counsellor be placed in the employment service to whom these young people could go for advice as to any occupation they had in mind, and as to who could put them in touch with employment along the lines suited to them. We found numbers of young people, boys particularly, working in blind alley occupations, who had in mind something very different which they wished to follow in life, and they had not been able to get in touch with the opportunity to take it up. We found on the other hand, the opportunities were there for that type of boy, and it seemed wise that there should be some agency to link up the boy and the opportunity. So we are going to make an experiment in Winnipeg for vocational guidance through this counsellor. The Minister of Agriculture has extended to us his sympathetic support in the matter, and has told us that he will place such a man at our disposal for this work. I have been in very close touch with this proposal because I have been chairman of the committee throughout the work. In connection with this scheme there must be someone in the city who has a knowledge of the various occupations and of the general foundation in education necessary for those occupations, someone who would be connected with the schools who would do certain work with the young people in the public schools before they reach the age at which they are allowed to take up some occupation.

Dr. MERCHANT: Have you any scheme of coupling up those two things now?

Mr. FLETCHER: We are making our start with our vocational counsellor to look after the proper placing of the young people and to follow them up in their occupations.

Dr. MERCHANT: If you get the proper type of man, could you not have him do the other things too?

Mr. FLETCHER: I do not know whether he would have time to cover the whole field. I think we would require a second man of similar type who would give his whole time to the schools.

Dr. MERCHANT: Do you think they should be separated or together?

Mr. FLETCHER: It should be one organization worked from the one office. I take it they would have to work very closely together, but my experience in connection with that survey emphasizes very much the necessity for the man working in the schools in conjunction with the counsellor looking after the placing and following up.

Dr. MERCHANT: There is no doubt about that.

Mr. FLETCHER: We have a concrete case in Winnipeg. The Winnipeg School Board established a year ago last September one junior high school. The first year's work seemed fairly satisfactory. The superintendent thinks he is going to get fairly good results and this year they have organized another school in another section of the city. He has in mind to gradually extend this junior high school organization, and if he can persuade his board that it is the right thing, I think he will get the money for this purpose.

Dr. MERCHANT: What proportion of the time do they give in these schools to practical work?

Mr. FLETCHER: I do not know what the proportion is.

Dr. MERCHANT: I have visited a great many of these schools and, with the exception of one, I never found practical work that was above the grade of manual training.

Mr. FLETCHER: I understand that in coming years the grade of work will be along the line of ordinary manual training although it will be extended to include a wider field of operations.

Dr. MERCHANT: The practical work in these schools is done in one of two ways. First, the student gives daily or weekly a certain amount of his time to practical work in several vocations, an hour or two in the printing shop, an hour or two in the machine shop, an hour or two at woodworking, etc., or second, he spends in one department all the time given to practical work, and at the end of a term he changes to another department of practical work. How is it done in your schools?

Mr. FLETCHER: They have a certain proportion every week.

Prof. GILL: What proportion of the students take the general industrial course in the Toronto technical school? And for how many years do they continue that course before they select a vocational course?

Dr. MERCHANT: We have three different classes in the Toronto technical school; First, the general industrial course; second, what is called the technical course; and third, special courses for day students. Those who take the general industrial course are of two classes; first, those who come in at the fourth book standard. Strictly speaking, these students are in prevocational classes; second, those who come in with high school entrance standing. In the general industrial class of the first year possibly sixty per cent is made up of students who are of high school grade and who are taking work that is practically vocational from the beginning. In the school at Ottawa, the proportion of pupils of high school grade is much higher. I do not suppose fifteen per cent of the pupils here are prevocational pupils. There is a reason; they have another school in connection with the public school system, the function of which is to do work somewhat similar. The public school teachers naturally direct pupils to this school. The technical students are also made up of two classes. The first is those who are preparing for matriculation in the department of applied science at the university, or in the case of the girls, of household science. The second class is made up of students who desire to take courses that are technical rather than industrial. These courses include such subjects as industrial chemistry, electricity, mining, etc., which are of a practical character and below uinversity grade. No one who has not come up to high school standards is allowed to take these courses. The first year's attendance is made up of really four groups; first, the prevocational group; second, an industrial-vocational group; third, a technical vocational group, and fourth, students in preparation for the engineering course. The prevocational students make up about 40 per cent of the general industrial attendance.

The Chairman: There will probably be a resolution submitted in connection with this topic.

Dr. Merchant: I think we shall be more or less at sea in drafting a resolution on this subject unless we get an expression of opinion as to the value of this type of work and as to the methods of carrying it on.

The Chairman: It may possibly be found that some provinces are not as much developed as others and do not feel the necessity for this type of school.

Dr. Merchant: Could we not have a word from each of the provinces in regard to this work? Mr. Kyle has told us something about British Columbia and Mr. Fletcher has told us something about Manitoba.

The Chairman: Very good. Nova Scotia?

Dr. Sexton: We have organized prevocational classes in the public schools in mining towns, sending qualified practical instructors into the public schools to give definite courses in mining science. The purpose was to appeal to the boys in grades VII and VIII who are prone to get jobs in the mines as trapper boys, drivers, etc., and to give them some interesting scientific and drawing instruction, to keep them in school for another year or two. This training is related entirely to the industry of coal mining, and was intended to give them a better footing in this work before they started it. It also has the effect of stimulating the interest of the boy in technical education, and of getting him to naturally continue his education in the evening schools after he leaves his day classes to start work. The tendency is for young men to wait five or six years after entering industry before they take up evening classes. In a colliery town practically every boy knows that he is going into the mine. The fathers pretend to think the boys ought to prepare for some other occupation, but it is a basic and steady occupation and offers good opportunities. It is the duty of the public school, therefore, to prepare the boys for this life work as far as possible. The mining science course is not left to the public school teacher, but is entrusted to the full-time mining instructor. After two years' experience we have found that the boys do tend to stay in the schools through grade IX and even through grade X. The students are given elementary instruction in mathematics, chemistry, and physics applied to mining, and elementary sketching and drafting related to mining machinery, so that there is not the usual break in their education. If we had had compulsory part-time continuation schools or adolescents engaged in industry this kind of prevocational instruction would hardly be necessary. The mining science courses were interfered with because our instructors enlisted and went overseas, so that they had to be discontinued for about three years, but they will be resumed this year. This is the only definite prevocational training the province of Nova Scotia has introduced. The main object has been to correlate the school with the dominating industry of the locality, and to maintain the interest of the pupils so that they will stay in school longer than they otherwise would.

I have had considerable experience in vocational guidance during the last four and one-half years with the Vocational Branch of the Department of Soldiers' Civil Re-establishment. During this time over 5,000 men have passed through my hands. The striking impressions they have left as a whole are the common lack of ambition and foresight in planning their life work, the uniform conviction that almost any other occupation beside the ones in which they had had experience was less arduous and more profitable, and an almost total lack of accurate knowledge of vocations which they seemed anxious to enter. On the basis of experience with adults it would seem that vocational counsel is extremely valuable, but too much importance should not be given to this agency alone.

Most people will be reasonably successful in many different lines of vocational activity. There are comparatively few who are possessed of marked ability, aptitude, or ambition. The theory that each individual has special definite abilities that will only function to the best advantage in some one industrial niche does not seem to be justified in dealing with the ordinary people in masses. There has been far too much emphasis placed on vocational guidance as a controlling factor in promoting personal and industrial efficiency and allaying industrial unrest. There does not seem to be any combination of abilities in each person that would make him a definite success in a single position and a definite failure in many others.

Industry is now subdivided into so many highly specialized occupations that it is very easy to fit a worker into a job where he will be successful. It takes only a few weeks or months to become proficient so that a living wage may be earned and it is much easier to shift from one occupation to another than it used to be where long apprenticeships were more commonly required. If pupils in the ordinary grades of the public school are thoroughly grounded in mathematics, are given a clear conception of the world in geography, of human accomplishments in history, are possessed of a good working knowledge of English and are so trained that they attack life's problems in a logical and intelligent manner, they can be placed in any one of a hundred occupations where they will be successful in the measure that they desire success. Of course there are a few with special gifts and aptitudes who should be carefully guided and counselled so that their full power for the service of mankind may be fully utilized.

Young people who are leaving the public schools should have available for their information systematic knowledge of the various industries they may enter to their advantage. Occupation and job analyses should be made, and personal counsel from a capable official should be ready for the intending worker to properly start him on his life work. The wages, hours, working conditions, opportunities for promotion, future possibilities, chances for acquiring industrial skill, continuity of production and employment, regular and special duties and requirements, etc., should be simply and clearly stated in pamphlets or bulletins, so that both students and parents may be helped in making a wise selection of an occupation for the youth. The young worker should be followed up on the job for from four to six months to see if he has been satisfactorily placed. The whole organized effort should take the form of a junior placement service, in which the vocational guidance and counsel is an important but minor part.

Dr. MERCHANT: What do you propose to do to secure the attendance of children in the technical schools?

Dr. SEXTON: Just what Ontario is doing in its recent legislation for compulsory part-time attendance. This will catch everyone in the school system, and through the part-time continuation school we will educate them not only as citizens, but increase their efficiency as workers.

The CHAIRMAN: Do you not anticipate a good deal of trouble in enforcing part-time attendance beyond the age of 14?

Dr. SEXTON: Yes, because compulsory attendance up to the age of fourteen is loosely enforced, except in large cities. There must be a development of public opinion towards the necessity of more complete education. Until you develop that you will not get any compulsion worth while. I do not think there is anybody who will say that compulsory attendance in small towns or in rural districts is effective to more than a small extent. Consequently, when you add a further extension of the compulsory principle, a great deal of educational propaganda will be necessary before the time limit of attendance can be extended and enforced.

The CHAIRMAN: You think that question should be grappled with?

Dr. SEXTON: Certainly. Some of our troubles at the present time arise from the fact that people have not enough education to thoroughly understand and vote upon the complex problems that confront them. You cannot expect people to be citizens in the full sense of the word unless they are specifically trained to be citizens. We simply lay stress on the subjects that are required for mere intelligence without directing their minds towards their duties as citizens. We have not given them even a modicum of industrial intelligence to carry on their ordinary occupations efficiently. That is why we are gathered here to-day and that is why the Federal Government is promoting technical education.

Mr. CUDMORE: If I understand the Ontario law, I believe it is provided that the 400 hours between 14 and 16 and the 320 between 16 and 18 must be taken out of the ordinary working day and the employer must let off his young people to attend these classes.

Dr. MERCHANT: Yes, that is quite right. Perhaps I did not make that clear. That is characteristic of all such laws at the present time. The school attendance must be between eight and six, and not in the evening.

Mr. BLACKLOCK: I do not know that I have anything to say so far as Saskatchewan is concerned. We have done very little along the line of technical educational work as I said this morning. We are using our existing institutions, that is, our secondary schools, for this purpose. Our big problem is to get our children to school in the elementary grades. I do not suppose we are any worse off in Saskatchewan than they are in any other prairie province, but it is an alarming fact that only five out of every hundred reach our high school grade. So far as the vocational work is concerned, only two or three of our secondary schools have started on this line. We have no technical institutions. One city, the city of Regina, has established vocational classes under our Vocational Act, this year, and the classes are very largely attended, particularly the night classes. In a school with a school attendance of about 650 or 700 they have their night classes of about 700 students. They are giving vocational courses in about twenty-nine or thirty different branches, but apart from that we have not done a great deal along this line.

Mr. D. A. CAMPBELL (Alberta): The ground has been pretty well covered by the remarks of Dr. Merchant and by the questions brought out in the discussion. It is true that boys who enter the technical schools have already made a decision. They have decided that they are not going to be school teachers or go into the professions—law, medicine, etc. A few of them may later enter the engineering courses in the university. They have decided already upon a vocation along mechanical lines of some kind. A great many of the boys who enter the technical school are on the point of dropping out of school altogether. The immediate problem is to persuade them to continue in the technical school for a year or two years at least. The technical school does appeal to boys of that type. I had one boy in the city who was looked after by the attendance officer who told me that he gave more attention to that boy than to all the other pupils in the city, and yet he found his home, you might say, in the technical school and stayed with us two years—he may be there yet for all I know—without any attention whatever so far as urging him to continue in school is concerned.

On entering the technical school the boy should be advised to avoid the "pockets" after leaving school—the " dead ends," as they are called—that so many of them drift into between fourteen and sixteen. Then it is essential to keep the boys in school, and to give them guidance. There is a great difficulty, as mentioned by Dr. Sexton, about training in a technical school for a specific occupation. According to the United States federal board, there are 9,000 occupations listed in the United States, and only about ten of those can be readily used in an ordinary day school, or at any rate, are actually used in the technical schools.

With reference to their guidance, the pupil's aptitudes or fitness should be a prime consideration. One thing that should be taken into consideration in guiding these boys is the economic condition. There is not much use in advising a lot of boys to go into an occupation if it is clear there is no opening for them in that particular line of work. There is a tryout period going on in industry at the present time, and I am rather in favour of giving the boys a tryout in the schools along a number of lines, such as wood, metal, power, electricity, and printing. In speaking to a foreman in this city, he told me that over 400 boys had entered the shop of which he was foreman, and some of them left in a week, two weeks, six months, and so on. Only about half-a-dozen of the 400 stayed and completed their apprenticeship. I think also the choice of a vocation should not be hurried in the case of any boy. It is not hurried in the case of other students. A boy will pass through the public school, the high school and go, perhaps, two years in the university before he decides what kind of engineering he will take up. If we can keep the boys in school for a considerable time and not hurry their decision, they are more likely to make a wise decision later on.

Prof. GILL: There are several points which have been referred to in the discussion to which I would like to refer. The first relates to manual training. Dr. Merchant suggested the possibility of difficulty in connection with the work in Ontario in case the Federal Government grant were not extended to include prevocational courses. He did not mention the fact that in Ontario manual training is entirely separate from the prevocational (general industrial) classes to which he refers. There is a manual training department quite independent of the technical education department. The character of the work done in the prevocational classes in Ontario is entirely different from that of the work done under the head of manual training, notwithstanding the fact that the equipment may be the same or nearly the same. The grant for technical education was certainly not intended to aid or promote manual training, but I see no reason why it should not be applied to support prevocational work which is organized on a proper basis and in charge of properly qualified instructors. The qualification of instructors is the deciding factor.

Dr. MERCHANT: Suppose we establish an independent prevocational school, similar to the one in Calgary, how can we draw a sharp line of distinction in a school of this kind? I am asking because it is probable that we may have a demand in Ontario for schools of that type.

Prof. GILL: In reply to this question I would say that I regard "manual training" as any kind of manual exercises, the purpose of which is to develop manipulative skill and facility in co-ordinating the hand and the senses, particularly the eye. These exercises may not have any relation to the actual operations essential to any particular vocation. The instructor is not necessarily expert and proficient in any particular vocation. On the other hand, I understand "prevocational work" to be vocational training of a fundamental character, the objective being to give the pupil some conception of the definite operations, methods, equipment and organization involved in the different occupations. In this case the development of manual skill is of secondary importance. Each prevocational teacher should be expert and proficient in the particular occupation to which his teaching relates, and this proficiency can come only through practical experience gained in employment. Incidentally, I may say that I have visited classes at work where the equipment was very meagre, yet the work was vocational in character; and I have visited other classes where the equipment was very extensive and the work was supposed to be vocational, yet in my humble opinion it was only high-grade manual training. I mention this to emphasize the fact that the teacher is the main factor. Regarding separate prevocational schools, I may say that it is just as easy to distinguish between this work and manual training in a separate institution as it is in case this work is undertaken as a department of the vocational school.

Assuming that we agree on the necessity or desirability of prevocational classes, the next question is the place which these classes will take in our educational system. Should this department be organized as a department of the vocational school or should there be special schools for this purpose? In other words, should we have junior technical schools?

Dr. MERCHANT: That is the question which we should decide upon here, whether the junior high school is to be a link in our system.

Prof. GILL: Dr. Merchant made some reference to the situation in Buffalo. According to recent information, the city of Buffalo contemplates the building of fourteen junior high schools. The money has already been provided for eight of these. The class programme for each of these schools will be the same, and will include manual training. When the building programme is complete every child in that city will pass through one or other of these schools. My own view is that an extensive system of junior high schools, such as this one will be, should include different types of class programmes. Some should have a commercial bias, some a bias toward building trades, others toward manufacturing, etc., the direction of the bias depending on the industries in the locality. In the city of Milwaukee, which has made notable progress in the development of technical education, the junior technical school, so far as it is developed, is a branch of the vocational school. The advantage of this arrangement is that the vocational teachers who have had practical occupational experience are utilized for the junior work. Under these circumstances the work can be made really prevocational without any difficulty.

Referring to the system in Ontario, there is one point which Dr. Merchant did not mention. There the boys are allowed to leave the public school and enter the technical school at the age of thirteen.

Dr. MERCHANT: In practice it works out practically that way.

Prof. GILL: I think the fact that boys at thirteen leave the public school and go to the technical school—I think Dr. Merchant has said forty per cent are taking prevocational work— shows the necessity of the prevocational course. Such courses enable the pupils to select a course which is more interesting and better suited to their native ability than the standard academic course.

Dr. MERCHANT: If you organized such a system, would you require all pupils to attend the prevocational schools or would you allow them to select as they do with us?

Prof. GILL: Pupils would be allowed to decide for themselves as to which type of junior high school they should attend, whether they should go to the academic type in which the main objective is to provide the pupil with more extensive and refined equipment to enable him to enter the academic courses in the university, or to one of the types which have a vocational bias toward one or other of the main activities of industry. In such a system as this, a sound and well organized system of vocational guidance is essential.

The CHAIRMAN: Pupils might want to transfer from one school to another. How would you deal with this?

Prof. GILL: That should not entail any serious difficulty. An efficient system of vocational guidance would reduce it to a minimum.

Dr. MERCHANT: Many of those who argue in favour of prevocational schools insist that all pupils within a municipality pass through the prevocational type.

Prof. GILL: That is not my view.

Dr. MERCHANT: Is it the opinion of this conference that vocational guidance should be organized in the larger cities, not in the smaller places, as a separate agency, in affiliation, of course, with the schools on the one hand and industry on the other? Those who have spoken have expressed opinions but I do not think I am just clear regarding the mind of the conference on the subject.

Dr. SEXTON: You must have junior vocational guidance for school children and another sort of vocational guidance for adults, but the former would be part of a junior employment service connected with the public schools.

Dr. MERCHANT: If we are all of that opinion, we may go on.

Dr. MACKAY: I think there should be some such organization in large cities or even in large towns possibly, but such a board of guidance should be very intimately affiliated with the teaching staff. It should be a portion of the work done by the teachers to co-operate and the board should give instruction to the teachers as to how they might aid it. There are many people who are not going to take advice from anybody else. I know that in Nova Scotia many people are born who want to be something grand—Prime Minister or president of a republic—and they resent very much any direction which gives them a lower standing than they or their parents think they should have.

In Nova Scotia, on the academic side, we give the teachers an idea of physics in connection with the history of the country, physiology and hygiene to give them an understanding of the principles which underlie public health, the principles of agriculture and of horticulture to enable them to give some practical work to the pupils either in the school garden or at home. But especially we endeavour to prevent the migration from the country to the urban centres by pointing out the glories of the farmer's life, the advantages from the point of health and starting in life. There is room, I believe, for a further extension of that in order to develop agricultural industry. In the normal college each teacher has either to take a course in manual training or in domestic science. Some of them take both. We do not expect every teacher to teach domestic science, but when she talks to her pupils we expect her to be able to talk with authority and to state how things may be done at home and to get pupils to do work at home.

For the cities and towns we are trying to devise a system of part-time classes; but in small towns we cannot expect to have a school for any one particular class, because there would be only three or half a dozen applying for instruction in one subject. I have been noting carefully what has been said here, and I hope we may be able to evelop our system in the province of Nova Scotia a little further.

Dr. MERCHANT: I think unless some member of the conference expresses an opinion adverse to the general proposition, we can take it for granted that vocational guidance should be organized in the larger cities as a special agency in close co-operation with industry on the one side and with all types of schools on the other.

Dr. SEXTON: I seem to have given Dr. Merchant a wrong impression. What I wanted to emphasize was that the advocates of vocational guidance would lead us to believe that they could pick out a special occupation which would fit the natural aptitude of each individual. They would go into a long systematic analysis of the pupils' qualifications for this or that vocation. My own view is that very few people have outstanding individual ability which fits them for distinctive occupations.

Dr. MERCHANT: I agree absolutely with you in that. I made myself understood badly if I was understood as pleading for any such plan.

The CHAIRMAN: Have we reached any agreement as to the age at which pupils should enter prevocational classes?

Dr. MERCHANT: If we are going to approve of prevocational work, we should get into these schools a fair proportion of the clever pupils. Now, the clever ones reach our standard at twelve years of age. This should consequently be the limit. That is the age at which pupils are admitted to the central schools in Great Britain and those schools are models in many respects. If you fix the limit at fourteen, you will get retarded pupils.

Mr. KYLE: I would like to hear what the representatives from Manitoba, Alberta, and Saskatchewan have to say about this age because Mr. Willis, the superintendent of education in British Columbia, is firmly of the opinion that the pupils should not be allowed to go to prevocational classes until they reach the age of fourteen.

Dr. MERCHANT: That means that your school will be a school for retarded pupils.

The CHAIRMAN: Mr. Campbell, what is your opinion?

Mr. CAMPBELL: We have in Alberta already two schools giving prevocational education. The Edmonton Technical school has in it a department or class for prevocational pupils. Those pupils begin at the same grade as in Ontario, that is grade 7. They are carried through grade 7, grade 8, and grade 9. The staff of teachers is exactly the same for those pupils as for the pupils taking the regular technical school work.

The CHAIRMAN: Grade 7 would be about the age of twelve or thirteen.

Mr. CAMPBELL: About twelve. I agree with Dr. Merchant and Prof. Gill that they should be of that age. The instructors are exactly the same; the shop instructors are not instructors who have been trained as manual training teachers; they are men who have been taken out of trades and have qualified as teachers. That is practically true of Calgary also. The grades are exactly the same—grades 7, 8, and 9—and the teachers are shopmen. The pupils are given instruction on a half-time basis, exactly the same as the regular technical school pupils. I would be in favour of making grade 7 the entrance requirement which would mean practically the age of twelve years.

The CHAIRMAN: Would that meet your views, Mr. Fletcher?

Mr. FLETCHER: Yes, that is what we are doing in Manitoba.

Mr. BLACKLOCK (Saskatchewan): Under our proposed regulations applicants who hold grade 7 or an equivalent standing or are at least fourteen years of age may be admitted. We require students to be at least fourteen years of age and to satisfy the principal that their education will be benefited by the instruction.

The CHAIRMAN: It seems to me the Resolutions Committee are now in a position to draw up a resolution covering this item. As regards items 3 to 7, we might possibly dispense with the general discussion and allow the resolutions to come before us in concrete form. The discussions which we have already had will be repeated when the different resolutions are before us tomorrow. This will be avoided if definite resolutions are brought before us at once.

COURSES OF STUDY AND TEXT-BOOKS

Dr. MERCHANT: Could we not have a discussion on questions 3 and 4 respecting the courses of study and text-books. Should these be prescribed for the schools, or should they be prepared and sent out simply for suggestion?

The CHAIRMAN: We could have a brief discussion.

Mr. R. B. VAUGHAN: I would like to call upon Prof. Gill to point out any weakness he has found in courses of study and text-books.

Prof. GILL: Up to the present I have not given much attention to the question of courses of study or text-books. My time has been taken up with other things. The fundamental considerations are economy and efficiency. In order to get courses of study which will adequately meet the needs of the situation, it is essential that for each course there should be a proper analysis made of the conditions and the object for which that course is intended. If it is the desire of the provinces that the federal department should undertake to gather information, make analysis and prepare courses of study, the department is prepared to do so. It will be more economical for the federal department to do this work, and it will insure uniformity as far as this is possible. I think uniformity in the fundamentals of technical education is desirable, and that there can be no objection raised to any effort made to secure this. If courses of study are prepared by the federal department, the provinces would be at liberty to adopt them as prepared, or modify them to meet local conditions. The same remarks will apply to text-books.

Dr. MERCHANT: My notion is that we should get from the Federal Government every available idea or suggestion, but it is another question whether anything of this kind is to be prescribed as a condition of the grant.

Prof. GILL: There is no intention to prescribe anything. On this, as on all other questions, the function of the federal department is to co-operate.

Dr. MERCHANT: I think you have really answered the question I brought up. As we are all agreed that, while it is advisable to have prepared for our use text-books in the various subjects and courses of study covering the whole vocational field, do we agree to co-operate with one another, and with the Dominion authorities in the preparation of books and courses, on the understanding that such courses shall be recommended but not prescribed?

Dr. SEXTON: I do not think that can be done because for purely industrial or technical classes it does not seem possible to secure such uniformity of instruction as will meet the widely different conditions in the same industry all over the Dominion. We must make every effort to make the courses of such a nature and content that the pupil will see the real and vital connection between the lessons and his every-day tasks in industry. I do not think we can secure the same uniformity in technical education that is possible even in the elementary and public schools.

Dr. MERCHANT: But would you not think that courses worked out along somewhat the same lines as the federal board do, would help the directors in working out their classes?

Dr. SEXTON: Such courses would be of great assistance to teachers in each province in planning their work to meet local needs.

Dr. MERCHANT: That is what I mean by "suggestive" rather than "directive" or "prescriptive."

Mr. FLETCHER: You want them as a guide.

Dr. MERCHANT: If we organize a central teacher-training school, I take it that the members of the staff would be utilized in the preparation of courses of study and text-books.

The CHAIRMAN: I understand the feeling of the conference to be against any aim at dead uniformity either as to examination, text-books, or courses of study, but in favour of suggested outlines. There will be uniformity in some things. Suggestions cannot but be helpful and stimulating, but the idea is not to aim at uniformity.

Dr. MERCHANT: Are we in favour, then, of the federal department undertaking this work?

The CHAIRMAN: If suggestions are to come to all of us they must be made by the federal authority.

The CHAIRMAN: With regard to the length of school year and school day, do we require any discussion on that point?

Mr. KYLE: I favour lengthening of the school year to eleven months and lengthening of the school day first year, six hours; second year, seven hours;

third year, eight hours; that is, provided the pupils are not saddled with a lot of homework. If these students had left school to engage in some industrial work, they would have been occupied eight hours per day. Let the industrial atmosphere be brought into the school and make the students feel that they are working at a serious business.

The Chairman: This covers the first seven items. There are left " Educational Reports, method of preparing," " General supply of teachers," and any incidental subjects that may be introduced. If the Resolutions Committee are to prepare something for us on these first seven topics, we might adjourn now and give them an opportunity to do that this evening.

The conference adjourned at 5.45 p.m.

THIRD SITTING, TUESDAY, OCTOBER 26, 1920.

Conference met again at 10.30 a.m.

Teacher Training

The Chairman: I understand the Resolutions Committee has prepared definite recommendations for the consideration of the conference, and I shall ask the chairman of the Resolutions Committee to present the report now.

Dr. Merchant: The first resolution reads:—

" Whereas, the supreme need in the proper and efficient development of technical education throughout the Dominion of Canada is an adequate supply of specially trained and skilled teachers;

"And Whereas, only a very small number of thoroughly trained vocational instructors has been found in any and all of the provinces;

"And Whereas, no institution exists in Canada for the preparation and training of teachers of vocational subjects;

"And Whereas, the work of training such teachers can be done more economically and more efficiently by interprovincial co-operation than by independent efforts;

"And Whereas, such co-operative action will aid in the development of broader conceptions on the part of the individual teachers and a more intense national spirit;

" Be it Resolved that the representatives of the Departments of Education of the several provinces of the Dominion in conference assembled urge that immediate action be taken in the following direction:—

" 1. That the Federal Government and the various provinces co-operate to establish and maintain one central institution for the adequate training of special teachers for vocational education.

" 2. That the basis of co-operation should be as stated hereunder:—

"(*a*) That the Federal Government provide the accommodation and equipment and one-half the cost of maintenance.

"(*b*) That the Provincial Governments combine to hear the other half of the maintenance cost.

"(*c*) That the provincial contributions for maintenance cost be in proportion to the urban population included in cities and towns having over 3,000 inhabitants.

"(*d*) That the ownership and management of the institution be vested in a Board of Governors, the members of said board to be appointed as follows: Three by the province of Quebec, three by the province of Ontario, one by each of the other provinces and two by the Federal Government; members to be appointed for three years, one-third to be retired each year; the board to select its own chairman.

"(*e*) That the institution have a dual staff—French and English.

"(*f*) That transportation of teachers-in-training be paid for by the training institution.

"(*g*) That the ownership of the institution be vested in the Board of Governors with the condition that the title shall revert to the Federal Government in case the property should no longer be required for the designated purpose.

Dr. MERCHANT: The other resolutions have not yet been typewritten, but we may consider this one now, as it is in no way related to any of the other resolutions. Referring to sections 2 (*b*) and 2 (*c*), the committee first thought that provincial support might be better covered by a general statement as in 2 (*b*). This question was lately reconsidered and it was decided that some definite basis should be presented for consideration. Final decision was deferred until we received a statement from Prof. Gill as to what the provinces would be liable for under the scheme proposed in 2 (*c*). Prof. Gill's statement is as follows:

Prince Edward Island	0·40	per cent.
Nova Scotia	5·61	"
New Brunswick	3·09	"
Quebec	31·16	"
Ontario	39·50	"
Manitoba	6·41	"
Saskatchewan	3·23	"
Alberta	4·47	"
British Columbia	6·05	"

Dr. THORNTON: The roughly estimated cost of the maintenance of the institution was suggested as $200,000.

Dr. MERCHANT: That is in the end. I have not figured it out, but my impression is that in the beginning one-half of that will be an outside cost.

Dr. THORNTON: In the case of Manitoba, 6 per cent on $200,000 will be $12,000. That is cheap at the price.

Mr. FLETCHER: Only half of that cost will fall upon the provinces. Our total would be between $6,000 and $7,000 as a maximum.

The CHAIRMAN: Any discussion, or will someone move the adoption of the resolution?

Dr. MERCHANT: As chairman of the Resolutions Committee, I would move that this resolution be received and adopted clause by clause. I think it would be wise for us to do it in this way. Personally I am quite willing to adopt the whole resolution as it stands.

Clause 1 agreed to.

Clause 2 (*a*) agreed to.

Dr. SEXTON: In order to simplify the resolution, I would move that 2 (*b*) be struck out and that clause 2 (*c*) be changed to read as follows: "That the provinces co-operate to contribute one-half of the maintenance cost."

Dr. MERCHANT: I think (*b*) and (*c*) should be combined.

Dr. THORNTON: Might I suggest that in order not to disturb the resolution, you take (*b*) and add to it that part of (*c*) which begins with the words "in proportion".

The CHAIRMAN: It is agreed that (*b*) and (*c*) be combined to make clause (*b*). The secretary will complete the wording. Clause 2 (*b*) agreed to, as amended.

Mr. R. H. ROGERS: Referring to clause 2 (*d*), "ownership" is dealt with in (*g*). Why not strike out ownership in (*d*).

Dr. THORNTON: Why not combine (*g*) with (*d*)?

The CHAIRMAN: There is a little repetition but that does not do any harm.

Mr. ROGERS: I do not think it is necessary.

Dr. MERCHANT: I think (*g*) should be struck out.

Dr. THORNTON: The provision in (*g*) seems to me a rather important proviso to put in. Why not insert this in (*d*) so that this clause will read:—

> "That the ownership and management of the institution be vested in a Board of Governors. with the condition that the title shall revert to the Federal Government in case the property should no longer be required for the designated purpose, the Board of Governors to be appointed as follows: Three by the Province of Quebec, three by the Province of Ontario, one by each of the other provinces and two by the Federal Government; members to be appointed for three years, one-third to be retired each year; the Board to select its own chairman."

I move the adoption of 2 (*d*) amended in this way.

Dr. MacKay: I second that.

Clause 2 (*d*), as amended, agreed to.

The Chairman: Are there any objections to clause 2 (*e*)?

Dr. Merchant: The purpose of this clause is to ensure a fair distribution of the costs of transportation. Under this clause the province of British Columbia would contribute for transportation on the same basis as the central provinces, i.e., on a basis of urban population.

Clause 2 (*e*) agreed to.

The Chairman: Any discussion on clause 2 (*f*)?

Clause 2 (*f*) carried.

The Chairman: The secretary will attend to the relettering of the clauses.

The Secretary: I would like to suggest that this resolution be read as finally amended and the resolution approved as a whole. As a matter of business it would be well to do this and thus make sure that it is in proper form. Before a vote is taken I would like to have it made perfectly clear to everybody what the passing of this resolution means. It will not commit any of the Provincial Governments or anybody to anything. That must be clear in everybody's mind. It is simply an expression of opinion of the individuals present at this conference.

The Chairman: The secretary will read the amended resolution and we will then take a vote.

The Secretary: (Reading resolution as amended):—

> "Whereas, the supreme need in the proper and efficient development of technical education throughout the Dominion of Canada is an adequate supply of specially trained and skilled teachers;
>
> "And whereas, only a very small number of thoroughly trained vocational instructors has been found in any and all of the provinces;
>
> "And whereas, no institution exists in Canada for the preparation and training of teachers of vocational subjects;
>
> "And whereas, the work of training such teachers can be done more economically and more efficiently by interprovincial co-operation than by independent efforts;
>
> "And whereas, such co-operative action will aid in the development of broader conceptions on the part of the individual teachers and a more intense national spirit,
>
> "Be it resolved, that the representatives of the Departments of Education of the several provinces of the Dominion in conference assembled urge that immediate action be taken in the following direction:
>
> "1. That the Federal Government and the various provinces co-operate to establish and maintain one central institution for the adequate training of special teachers for vocational education.
>
> "2. That the basis of co-operation should be as stated hereunder:—
>
> "(*a*) That the Federal Government provide the accommodation and equipment and one-half the cost of maintenance.
>
> "(*b*) That the Provincial Governments combine to pay the other half of maintenance costs in proportion to urban population of each province, said urban population to include towns and cities

with a population of 3,000 and over as shown by the latest decennial census.

"(*c*) That the ownership and management of the institution be vested in a Board of Governors, with condition that ownership of the institution shall revert to the Federal Government in case the property should no longer be required for the designated purpose, said board to be appointed as follows: Three members by the province of Quebec, three by the province of Ontario, one by each of the other provinces and two by the Federal Government; members to be appointed for three years, one-third to be retired each year; the board to select its own chairman.

"(*d*) That the institution have a dual staff—French and English.

"(*e*) That transportation of teachers-in-training be paid for by the training institution."

The CHAIRMAN: The vote now is to be taken on the question as to whether or not in our opinion we think this would be a good thing, not as to whether or not we are endeavouring to commit our respective Governments to the policy.

Resolution agreed to unanimously.

Dr. MERCHANT: The Resolutions Committee felt strongly that immediate action should be taken. To facilitate action, we suggest the following resolution, numbered 2:—

"1. That the secretary be instructed to forward a copy of the resolution *re* teacher-training to each of the Provincial Governments and on behalf of the conference to ask them to co-operate in giving effect to the resolution.

"2. To secure replies from the various provinces as soon as possible, and in case it is found that six or more of the provinces signify their willingness to pass the necessary legislation and to co-operate in giving effect to the proposal, to ask the Minister of Labour to endeavour to secure the co-opertaion of the Federal Government."

This resolution was drafted on the assumption that we are a body of educational men with no authority and that we must ask the Provincial Governments to co-operate in giving effect to the first resolution. Let me again emphasize the fact that this is simply a general statement that we should proceed with the establishment of a school if six or more of the provinces desire to co-operate. I move that this resolution be adopted.

The CHAIRMAN: This resolution instructs the secretary, Prof. Gill, to approach each Provincial Government and get a definite official answer from each Government, and if a favourable answer is secured from six or more, to then approach the Minister of Labour in an effort to secure the favourable decision and co-operation of the Federal Government.

Resolution agreed to unanimously.

PREVOCATIONAL TRAINING

Dr. MERCHANT: This is resolution No. 3:—

"Whereas, it is desirable that children should have an opportunity to obtain an educational development which is suitable to their native ability and aptitudes;

"Resolved, that junior industrial courses should be established for children who have completed grade 6, such courses to extend over a period of three years and to have a decided bias toward one or other of the main divisions of industrial activity, i.e., commercial, manufacturing, trades, agriculture, household."

Mr. ROSS: In that connection, is there any assurance that a grant would be paid on this work by the Dominion Government?

Dr. MERCHANT: That could not be put in a resolution.

Dr. THORNTON: But we could recommend that such prevocational classes should receive aid from the federal grant.

Dr. MERCHANT: The matter was taken up in the committee, and the consensus of opinion of the committee was that a grant should be paid.

Prof. GILL: I brought this particular question up at the committee meeting for the purpose of getting the opinion of the members of the committee, which includes the directors of all the different provinces. The policy of the Federal Government in relation to this particular phase of the work is not definitely fixed, and I wanted to get an expression of opinion from the provincial representatives before formulating a definite policy. In this connection I would like to point out that if the federal grant is used to aid these junior courses, which I am quite satisfied will be taken up and will prove a success, a large proportion of the provincial grants will be required for this purpose and, when the real vocational work is developed, there will not be sufficient federal money left for this purpose. I do not think it was intended that the grant should be applied to promote elementary industrial education. It was intended to apply only to vocational work.

Dr. MERCHANT: I may say that in Ontario we have reached the limit already. We did not expect that the grant would be available for commercial education and we have not applied it for this purpose. If we extended the grant to include commercial education we would at once have additional claims for possibly about $80,000 or $90,000. We are just in the position that we shall have to decide whether the grant shall be devoted to commercial education or to prevocational education, unless we ask the legislature for a much larger sum for vocational education. I am strongly of the opinion that the money should be devoted to prevocational work, because I regard prevocational training as essential to the development of the whole scheme. As I said yesterday, one of the main purposes of those schools is to endeavour to lead into industrial employments a much larger proportion of the young people who are going through the public schools. Moreover, these schools are not only becoming an essential means of guidance; they are giving a training in the fundamental things necessary to a vocation. These are my reasons for maintaining that the grant should be made available for this purpose.

Mr. ROSS: I fully agree with what has been said regarding this work. In the western provinces and in some of the eastern provinces we are at the beginning of the thing, and the Government have decided to give educational work a technical bias or bent. I think this is the only way we can properly start this work, and for that reason it should be recognized by the Dominion Government as entitled to aid.

The CHAIRMAN: Where should those classes be established?

Dr. MERCHANT: I described two or three different types, but I think we should leave that to each province. We should not prescribe the form the classes should take, but we might pass a general resolution.

The CHAIRMAN: Is the idea underlying it to make these classes available in cities, towns, and villages, or how widely would it be practical?

Dr. MERCHANT: That is a question of the practical working out of the plan. My experience is that, in a purely voluntary system, you cannot get an attendance to make it worth while in a city with a population of less than 10,000 people. Conditions will be quite different under our Adolescent School Attendance Act.

Resolution agreed to.

VOCATIONAL GUIDANCE

Dr. MERCHANT: The next resolution is No. 4, which reads as follows:—

> "That a committee consisting of the federal director and the provincial directors, or other representatives, be appointed to formulate a system of vocational guidance."

The Committee thought it better to leave this question for future consideration and to have a committee working upon it in the meantime.

Resolution agreed to.

COURSES OF STUDY, TEXT-BOOKS AND BULLETINS

Dr. MERCHANT: The next resolution is No. 5:—

> "Resolved that the Federal Department of Labour be asked to issue from time to time suggestive courses of study, texts, pamphlets, bulletins, monographs, and other material, which would assist provincial officers in the problems of organization, development, and administration of technical education."

The Committee regards this as one of the important resolutions of the conference. We feel that the central department can do a great deal to assist the different provinces, and to take from our officers a burden of work they now carry. We shall all welcome this service by the Dominion authorities if it can be secured.

The CHAIRMAN: The very fact that it is left merely as a suggestion will mean that it will be more acceptable and more generally acted upon than if it were put in a definite way.

Dr. MERCHANT: I move that the resolution be adopted.

Resolution agreed to.

LENGTH OF SCHOOL YEAR AND DAY

Dr. MERCHANT: The next resolution is No. 6:—

> "Resolved, that in the opinion of this conference the school year for full-time technical classes should be the same length as the ordinary school year; and further, that the school year as at present observed is too short."

The latter part is only an expression of opinion. My work keeps me in touch not only with technical education but with all departments of our office procedure. I have been studying the effect of the shortening of the school year, and I am thoroughly convinced that one of the main reasons why our children at twelve years of age are below the grade of children in European schools is because they are not receiving a sufficient amount of instruction each year; the school year is too short. The school days are being reduced to about fifty percent of the actual time. The teacher-training work carried on by us throughout the summer holidays has required us to establish voluntary schools to be used for practice teaching, and we have been astonished at the number of children who turn out for all kinds of instruction. We had in school last year some 300 kindergarten children who came voluntarily. I am entirely convinced the school year is too short. I move the adoption of this resolution.

Mr. KYLE: While I agree with the resolution, I should like to see something added about the length of the school day.

The CHAIRMAN: Is there another resolution dealing with the school day?

Dr. MERCHANT: No, there is none.

Mr. KYLE: The school day for a technical course is absurdly short inasmuch as we aim to bring an industrial atmosphere into the technical schools. I am very strongly in favour of having a six-hour day for the first year, seven hours for the second, and eight hours for the third year. If the boy goes to work, he is engaged for eight hours per day. Moreover, it is absurd for us to engage practical tradesmen who are accustomed to an eight-hour day and then give them a six-hour day. I would move that we add the lengthening of the school day to the resolution just moved by Dr. Merchant.

Mr. FLETCHER: I am of the opinion that for high school students, even for students of twelve years and up, we might profitably extend the school year. I think for children under 12 or up to grade 6 the school year is quite long enough. I think our vacations, particularly for the high schools, are too long. As suggested by Mr. Blacklock, while we were talking it over quietly, possibly the days now are too long when you consider the amount of homework which the student has, and that with profit we might shorten the day a little so as to leave a little more time for homework, or else I would be inclined to lengthen the day for them and let them have more time for preparation in school under guidance, when you would be sure they would get the preparation. But I think we could very well shorten the length of the vacation or extend the length of the school year for high school students, and I would strongly be in favour of that for technical students for the reasons Mr. Kyle has given.

The CHAIRMAN: Perhaps Dr. Merchant might amend his resolution to read " for senior grades and secondary schools."

Dr. MERCHANT: I am convinced that the school term should be lengthened for the lower classes as well as for the higher. Our experience with the kindergarten children convinced me that these children were better in school in the summer than running on the street. When I was a boy at school, we had two weeks' holiday; then we got four; then eight; now we have ten. I feel that we have gone too far in this direction.

Mr. FLETCHER: You have more than we have.

Dr. MERCHANT: Theoretically we have eight, practically we have ten. I am not pressing the last part of the resolution. I do not think that the passing of this resolution will affect the situation. It will simply be an expression of opinion, that is all.

Mr. CAMPBELL: It seems to me this conference is pretty well agreed about the length of the school year. There is the other point about the lengthening of the school day. I think it would not be well to lengthen the school day for those junior industrial classes, but once a boy has entered what is strictly a vocational course, it might be all right in that case.

Dr. MERCHANT: Mr. Fletcher has expressed exactly our experience. We find that the school work day is too long for all our children except those in the junior grades. The school work day of course includes the time spent at school and time spent at home on school work. I am convinced too that the solution of the problem is to be found along the lines proposed by Mr. Fletcher, viz., a longer period at school with no school work at home.

Mr. ROSS: Supervised study.

Dr. MERCHANT: More supervised study; more recreation within the school period—supervised recreation—and no school work at home.

Dr. MACKAY: I think we can all agree on the original resolution. I would call for the question.

The CHAIRMAN: Dr. MacKay asks for the question—that the original resolution be put.

Mr. FLETCHER: That resolution implies that the school year is too short for senior grades, because vocational pupils are senior pupils. Is the intention to cover the whole field?

Dr. MERCHANT: The general impression is that we are considering the upper grades.

The CHAIRMAN: Instead of saying that it is too short, would you be more specific and say it should not fall below so many days?

Dr. MERCHANT: You might, but we are dealing only with a general proposition.

Resolution agreed to unanimously.

The CHAIRMAN: That is the last. Now, there is the matter of the school day. Does someone wish to make a resolution, or shall we take it for granted that it has been discussed enough?

Mr. KYLE: I do not know that it would be wise to specify any number of hours. The practical work which is done at the bench or in the laboratory is not as fatiguing as that which the students have to undertake in the ordinary grades at high schools. In the latter, certain lessons are restricted to thirty minutes or forty-five minutes, but in the practical classes the pupil can work two hours without fatigue. It would be absurd to give practical lessons for less than two hours.

The CHAIRMAN: You would like the hours to correspond with actual industrial conditions?

Mr. KYLE: Yes, but I think we should go no further here than record our opinion that the technical school day should be lengthened.

Dr. MACKAY: The number of hours per day might be increased progressively in the later years so as to approach industrial conditions.

Mr. KYLE: That would meet with my approval.

Mr. PEACOCK: I question the advisability of this conference going on record as eliminating homework entirely.

Dr. SEXTON: I do not see why we should spend time discussing this question. It does not affect any great percentage of the school population, and it is more or less unintelligible to the general public.

Dr. MERCHANT: I might say, we propose in connection with our part-time education to have schools open from eight to twelve and from one to five. This does not mean that we shall have one class eight hours.

EDUCATIONAL REPORTS AND STATISTICS

The CHAIRMAN: The next item on the Agenda is No. 8—"Educatioal Reports. Method of Preparing," proposed for discussion by Dr. Merchant.

Dr. MERCHANT: When I wrote Prof. Gill I had in mind the bringing into operation of the Adolescent School Attendance Act. I find no data available to assist me in finding out how many pupils are likely to be brought into the schools by the Act. When I go to a school board the first question will be: How many pupils shall we have to provide for? I cannot answer this question because our educational reports are defective in this respect. For instance, we want to know how many children there are in the city of Ottawa who are fourteen years of age? How many—fifteen? How many—sixteen? The figures are not in the reports and they are not in the municipal reports furnished by the assessors. It was this need I had in mind when I suggested that we should consider the question of educational reports. I need also to know the number that are at work and the number that are at school.

Mr. CUDMORE: If we had the age and sex table which I propose to lay before the conference to-morrow we would know how many between those ages are already in attendance in any grade of educational institution, even at private schools. We hope to get returns from private schools as well as from the state-controlled schools.

Mr. ROSS: Is there any system in any province or state whereby we get the school population in rural schools? Have we any rural school census in Ontario or any of the other provinces?

Mr. FLETCHER: We get the information that Dr. Merchant wants to get through the census; we get an annual school census from every district except Winnipeg, and we have agreed in that case, although the law provides for one every year, to take one every two years. But we have a census of the children in school, and the children not in school, covering the years five to eighteen in the rural districts and six to eighteen in the towns. By law the districts are required to furnish the census.

Dr. Merchant: That is what we need.

Mr. Fletcher: As this whole problem will come up to-morrow in our conference on statistics I do not think we need go on with it to-day.

Mr. Ross: In Calgary and Edmonton we get a record as to the population in each rural centre and each district, but those reports are not accurate. We have to depend upon the teacher and the secretary, but we have no authority to compel them to certify to their reports. In Calgary the census was taken by the teachers through inquiry of the parents as to the children who were not at school. Those reports are of very little value, because they are not accurate, and I was wondering whether any province had an accurate census and how they gathered those figures, whether they paid anything for the secretaries or the teachers to supply them with this information, or whether they did it voluntarily and whether or not it was accurate.

Mr. Fletcher: In Manitoba we find the information we get is fairly accurate. It is the duty of the secretary under the law to supply the information, and he usually is allowed an extra fee for the service.

Dr. Sexton: Are the reports accurate from foreign districts?

Mr. Fletcher: Yes, in those cases the teacher usually gets the information. The test as to the accuracy of the report comes from the follow-up of the attendance.

Dr. Merchant: I had in mind also the question of the reports that we receive from our schools and the reports that are necessary to transmit to the Federal Department of Technical Education. This may not be a matter for general discussion, but Prof. Gill has been suggesting certain forms for these reports. Possibly the directors might meet and discuss with him the question of these forms.

Dr. MacKay: I think the Dominion Statistician would like to have our technical statistics put in in such a way that they could be summarized for all Canada.

Dr. Merchant: Can we not take this matter up to-morrow and let it drop for the present?

General Supply of Teachers

The Chairman: If this has to come up to-morrow, we might take up the other question which interests everybody, the general supply of teachers, proposed for discussion by the province of Saskatchewan.

Mr. Blacklock: This is a very big question, and as you say, Mr. Chairman, it interests everyone here. Our idea in proposing this question was not to include only technical teachers or teachers in vocational schools, although this is very important. We have passed a resolution this morning which will eventually provide for a supply of teachers in vocational schools. Before I came away, I gathered some statistics which will perhaps be interesting to all the members of this conference. We are short of teachers in Saskatchewan notwithstanding the fact that we get a goodly number from the eastern provinces, and I am going to tell you this morning just how many teachers we have obtained from each province of the Dominion during the past fourteen years, beginning with 1906 and up to the end of 1919.

Ontario has provided a very large number of our teachers; a very large number of our inspectors come from Ontario, and many of the officials of the Department of Education come from that province. We have received from the province of Ontario in the last fourteen years 3,048 teachers, from Manitoba 1,651. To show you that the trend is westward we obtained from Alberta only 188. From the province of New Brunswick we obtained 360; from the province of Quebec 180; from the province of Nova Scotia 614. From the British Islands we obtained 743; from Prince Edward Island, 288; from the United States, 248. To prove again that the trend is westward and not eastward, we received only 29 from British Columbia; a total of 7,149 received in Saskatchewan in fourteen years from outside the province. We have trained in the province a little more than that number, something over 9,000 teachers. Our teachers are also moving westward, and I have no doubt Alberta and British Columbia are receiving some of ours, but we are receiving a growing number from the eastern provinces. I do not recall any time during the whole of my experience in the province when we received so many inquiries from teachers from the eastern provinces as we have at the present time. I attribute that to two causes, the lure of the West and the fairly good salaries that are being offered. It is not an uncommon thing in Saskatchewan for a rural district to pay a salary of $1,500 a year and provide the teacher with a furnished cottage and fuel.

Dr. Thornton: Have you on your table a definite statement of the average salary paid?

Mr. Blacklock: Yes, I have it here. (Statement passed to Dr. Thornton.)

Mr. Rogers: About how many teachers do you employ to-day?

Mr. Blacklock: Last year we employed something between 5,000 and 6,000 teachers. We have licensed over 16,000 teachers in the last fourteen years.

The Chairman: As regards the 5,000 or 6,000 teachers, you have not that many schools; that includes two teachers for some schools.

Mr. Blacklock: In many cases there are two or three different teachers in a school in one year. W estimate that we lose from 900 to 1,200 teachers out of the province every year.

Dr. MacKay: What does the word " school " mean? To many people it means a school-house. Now, you can have a school-house with 20 class rooms and 20 teachers in it. In the report of the Nova Scotia Department of Education the word " school " is defined to mean " class room," because in every country a class room represents approximately the same thing; while the school building may include anything from one up to twenty class rooms.

Mr. Rogers: We should decide on that to-morrow.

The Chairman: This discussion, to be of any help, should lead up to suggested methods of increasing the general supply of teachers.

Dr. Merchant: I want in this connection to mention a matter that relates to something you said yesterday. You rightly emphasize the necessity of providing the various provinces of the Dominion with trained men. We have reconstructed the provisions for training the higher teachers in our province and have established an institution known as the Ontario College of Education, in affiliation with the University of Toronto. In accordance with the terms of the agreement between the Department of Education and the University, the college will establish post-graduate courses for teachers, leading up to the higher degrees. The purpose is to offer opportunities to Canadian teachers for higher study, which in the past could be had only by going to the United States or other countries. The expenses of the college are borne by the Ontario Department of Education, and students from all provinces will be admitted on the same terms. As the strength of the college will in a measure depend on the attendance, it is hoped that teachers throughout the Dominion will take advantage of these courses.

The Chairman: I believe it would be helpful if we could exchange information around the board and get an idea of the shortage of teachers in each province.

Dr. Thornton: Supposing we hear from Mr. Blacklock how many he is still short after getting so many teachers from the other provinces.

Mr. Blacklock: It is difficult for me to say definitely. Perhaps, if I tell you how many permits we have issued, you will get an idea how short we are this year. I think last year we issued fewer permits than we have in fifteen years. We issued between five and six hundred permits last year. Those permits do not altogether represent the shortage of teachers, because a permit is counted if it is only for a month or two months. We may have a qualified teacher in a school for eight months and the teacher may marry or move to Alberta or drift into some other line of work, and a permit is issued for the rest of the year. Up until the first of July of this year we issued only 250 permits, but I find a growing number of permits being issued just now. I do not recall a time in my experience when there was such a demand for permits as we have had since the middle of September. I attribute it to the fact that with better salaries teachers are able to save more and are entering universities. Since the last week in September we have been deluged with recommendations from our inspectors for permits because teachers are leaving to enter the universities.

The CHAIRMAN: We are in the same boat.

Dr. THORNTON: It is the eternal circle. If you provide the teachers with higher salaries, it means they will soon go to the universities.

The CHAIRMAN: How are conditions in Quebec for teachers' supply?

Mr. MACLEISH: Mr. Macheras says there is practically no shortage in Quebec.

Prof. GILL: Are there any temporary certificates?

Mr. MACLEISH: No. In the province of Quebec it is quite different. There we have Catholic schools and separate Protestant schools. The Catholic schools are generally managed by the brothers and sisters in the province.

Mr. ROGERS: There is a shortage on Prince Edward Island, and has been for several years, very largely on account of the exodus to the West. Of course, a number of schools are very small. We employ about 600 teachers altogether.

Mr. PEACOCK: With regard to New Brunswick, I am not closely in touch with the matter, but I know that there is a shortage and the situation is becoming more acute. For instance, the attendance at the Normal school three years ago was about 350, and it dropped this year to about 180.

Dr. MACKAY: As regards Nova Scotia, I cannot give the exact figures just now, but we are short. We had to issue over 200 permissive licenses.

The CHAIRMAN: Is your normal school enrolment holding up?

Dr. MACKAY: The attendance at the normal school is very much lower the last two years than usual; only about 230 enrolled. In our school system we put a premium on normal training equal to about one year's work of scholarship. A person can obtain a license without attending a normal college, but they have to stand one year higher in scholarship and pass a written examination on school laws and forms, school management, school teaching, hygiene, temperance and so forth. That is called the M.P.Q., the minimum professional qualification. Before this system was introduced, the number of normal trained teachers in the province of Nova Scotia was a little over 400. Now over 1,600 are normal trained, and the balance are generally young teachers who have passed the M.P.Q. examination and will attend the normal college, perhaps after teaching a year or two. The low attendance at our normal college is offset to some extent by our summer training schools which we have established. Each school is under the charge of an inspector, ten inspectors conducting such schools for four weeks during the months of July and August, assisted by at least two other teachers and other specialists when these can be secured. These schools gave us an average of about thirty with each of these ten inspectors, and added three hundred teachers who are otherwise untrained, to supplement the small attendance at the provincial normal college. That explains to a great extent the smaller attendance at the normal college. The limited third class is limited to certain districts and certain schools that cannot secure the higher grade of teachers. Now, while there are relatively a negligible number schools closed because teachers are not available, we are employing about 2,000 teachers of the lower grades.

Mr. Fletcher: The limited third class, have they grade 11 or the old normal school training?

Dr. Merchant: Grade 10, I should say, not 11. Some of them are 11. A school in the county of Carleton can engage one of these teachers only on the condition that the trustees have advertised in a paper of provincial circulation and found it impossible to secure for a fair salary a teacher. Then one of those would be available, but application would have to be made by the board of trustees to the Department of Education. I may say our percentage of higher grade teachers has gone up very fast of late. I think we now have from 9,000 to 10,000 second-class teachers engaged in the province, so that our condition is much better than it was ten or fifteen years ago, but, at the same time, there is the shortage in second-class teachers of 2,000 that should be made up.

Mr. Fletcher: In Manitoba, the number of schools that are actually closed is, to use Dr. Merchant's phrase, a negligible quantity. Notwithstanding that, there are very few schools not open, we have issued, since the first of September, probably 200 temporary licenses to untrained teachers. Most of these young teachers have completed what we call grade 11 and are teaching this term. We will have teachers from the normal schools at Christmas to fill their places. Our attendance at the normal schools last year came back to normal, and even above normal, and I think this year we shall have as many students as last. At the opening of the schools on September first, they were all filled to capacity. We have three fifteen-week sessions opening on the second of November at provincial points and there will be good classes at all points; but while we are training as many teachers as we trained in the old days, or more, we still have this eternal shortage term after term in the schools. If a teacher would give us a reasonable period of service, we in Manitoba would have teachers to spare with the number we are training.

Dr. Merchant: What is your average period of service?

Mr. Fletcher: I do not know, but I think it is just under three years. The number of men in the profession is decreasing year by year. As in Ontario, we are increasing the number of teachers who hold a permanent license, that is, a full year's normal training. The number of these is growing, but at the same time we do not appear ever to catch up with the demand. Of those who go through our third-class courses, less than fifty per cent come back to the normal schools to finish their training, with the result that the period of service there cannot exceed three years, because that is the period of license.

Dr. Merchant: That was our experience under the old conditions.

Mr. Ross: In Alberta, we have never had a lower grade certificate. We have never trained teachers for a lower grade certificate than grade 11 or the second-class. We have never had, since the province was established, what is called third-class normal, and all our teachers after graduating from the normal school and teaching successfully for a year are given a life certificate. So that we have not the same transitory conditions as some of the other provinces have.

Mr. Fletcher: Perhaps it would be only fair to state that you train only for permanent licenses, but on a one-term normal school course. The normal course in Alberta was not a one-year course; it was a one-term course of four months.

Mr. Ross: I think it was the same as Saskatchewan; that is Saskatchewan and Alberta had the four months' course, but Saskatchewan demanded a third-class course prior to that.

Mr. Fletcher: For a time.

Mr. Ross: Yes, and after that they let down the bars and allowed them to enter the normal school for the four months' course and get the permanent certificate after graduating. Speaking of the present, I never remember a time in the history of Alberta when good positions have gone begging as they have this fall. A number of the smaller village schools found great difficulty in securing teachers of a type that they wished to place in charge of the schools. This may be due to the fact that the salaries were not a strong inducement. The salaries of those small village schools, where they had three to four teachers, were from $1,200 to $1,800, the majority of them being about $1,500, and even when I was coming away, certain boards were asking for teachers. They were prepared to give $1,500 and even $1,600 and we were not in a position even to suggest a teacher. We have in the past rarely ever given permits to teachers or to students having a lower standard than grade 11. So far this year we have lived up to that standard, but I am afraid we will have to take lower grade teachers from now on to fill all our schools. The minister has inaugurated a system of two-room schools in the country districts, especially among the foreigners where the children are numerous, and we find that a considerable number of teachers wish to get into these schools where there is a cottage in connection with the school and where conditions are much better, salaries are better, and there seems to be a likelihood of more permanency. But the situation in Alberta is serious, and quite a large number of our schools will be in charge of immature and untrained teachers.

Dr. MERCHANT: What is the normal school situation?

Mr. ROSS: We have between 375 and 400 in our normal schools. That is not as satisfactory as we would like. Prior to last year we had about 250 in attendance each session and we had two sessions during the year. We thus trained between 400 and 500 teachers each year. Last year the minister, on finding that the normal school would not be filled, adopted a new policy for our normal schools. He can, and I have no doubt will, explain this policy better than I can. All I will say is that this policy involves the giving of loans to pupils, and that the policy has been a success. The advertisement of the loans brought us about 110 students, and this fall we find that a large percentage of those entering the normal school are asking for the loan.

Dr. MERCHANT: What percentage would that be?

Mr. ROSS: Between 30 and 35 per cent.

Mr. PEACOCK: What are the conditions of the loan?

Mr. ROSS: The student will get a loan of $50 per month, or a total loan of $400 for the eight months' term. The term closes about the end of April, and they are supposed to commence repayment of this loan on or about the first of November. I might say that this scheme has worked out very well. I do not think it will be a losing game from the standpoint of the department.

Mr. PEACOCK: How long do they teach?

Mr. ROSS: The idea is they should teach in the province until they pay back the loan, but there is no stipulated time in regard to that. Under the agreement made with the department they are supposed to continue teaching in the province until they have repaid the Department of Education the money advanced.

The CHAIRMAN: I would like to say a word before one o'clock. It happens that I am interested in this question, particularly at the moment. I have been asked to speak this afternoon to the annual provincial conference of the Daughters of the Empire on the matter of Canadianizing the foreign-born. I am glad the question of teachers came up this morning, and I was interested in getting the information from the various provinces. Every man has his pet scheme to solve one problem or another, but it shatters our visions and hopes very seriously when we get the information that we received here this morning. One almost loses confidence in oneself after being informed as we were this morning. In spite of teachers' salaries doubled, in spite of the standards of qualifications having been raised, in spite of many things having been done that should make the teaching profession attractive and permanent, we find the enrollment in the normal schools in almost every province seriously reduced and the shortage of teachers increasing. If the larger salaries and better inducements and conditions being offered were filling our normal training schools, I would not be so discouraged at the present shortage which is not only Dominion-wide, but international and world-wide. Every country on earth, so far as I know, is having the same difficulty, and perhaps the country that is suffering more than any other in the world is the United States.

We have in Alberta, I should say, roughly a shortage of 500. We might just as well tell the truth and face the facts. There is no use in trying to conceal anything. At certain times of the year it exceeds that number. When we have university students to draw upon, qualified or unqualified as the case may be, it will be very much reduced. At one time in June we had every school in the province, about 4,000 rooms, in operation except 32, and those 32 could not truthfully be said to be closed on account of teacher shortage. There will always be a few schools not operating, no matter how many teachers you have. So that we might say we had the situation well in hand in June, the most favourable time of the year. Drawing upon university students, some of them under permits, some of them qualified teachers, enabled us to do this. But now they have gone back to college, and other things have happened, so we find ourselves with some 300 or more permits and quite a number of schools not operating, and facing a winter when I do not know what will develop. The situation is exceedingly serious, and if this conference can do one thing more valuable than another, it seems to me it is to formulate some sort of plan and to make suggestions for the increasing of our supply of teachers. We in Alberta have adopted a couple of policies. One has been referred to by Mr. Ross. There are three or four policies, but two of them are rather new ones, and we build a great deal of hope on these. One involves the lending of Government money to teachers-in-training. After we had extended the term from four months to eight, we opened our normal schools a year ago last September with only half the usual enrollment. We were to turn out one class in the year instead of two, and it was only to be a half class. Obviously, we could not face this situation, and in order to do everything that could be done the policy of lending Government money was initiated. We made a survey of the province. We canvassed every high school pupil. We sent seven competent men to make public addresses in every high school in the province, and to do everything possible to induce students to look forward to the teaching profession. We submitted a questionnaire to every pupil, asking for reasons why they did not wish to enter the normal school. We got the reason; they were unable to finance themselves through the normal school course. We decided to provide the money, and after the normal schools were opened and the enrollment was completed, we announced the loan policy. Consequently all we got from the policy was clear gain. Within ten days we got an additional 118 students. We gathered them from all manner of occupations. Some came from banks; some were stenographers; some came from offices; they took the Government loan and entered the normal schools, so that I know everyone of those 118 came as a result of our policy. It was a fair test, and there was no chance taken. That was the first year. But the critics said: "Wait till your second year, and when your second year comes, you will find they will all want the Government money whether they need it or not." It has not worked that way. We have 375 now and 125 of those are on the Government loan. The maximum loan is $400 advanced at the rate of $50 a month in the eight months. No interest is charged until the last advance is made and the pupil graduates. Then a note is taken and the interest accumulates. They are given two years after graduation to repay the loan. The policy is succeeding well. It has secured 120 each year for the two years of operation. I would like criticism and a real good discussion on this matter. I want to draw attention to the fact that by far the greater proportion of those who are taking Government loans are from the country. The cities of Edmonton and Calgary have normal training at their doors; they do not need the loan, and the majority of the 125 who are taking the loan are off the farms. They are young men and women of serious mind and serious purpose. They know the country problem; they know the country life; they are satisfied with it, content with it, able to give good service to it, and we hope they will remain in the profession. If in all these years we have been overlooking the finest material, it is a pity, and if providing the Government loan will get that material into the teaching profession, the policy should be a good one.

The other policy has to do with teachers' residences. Teachers' residences have been put up in all the provinces and all the states, but we found that the cost was very heavy. We believe that the teachers' residences should not be shacks, but real, warm, confortable homes on a parcel of land—at least five acres—more if you can get it. We laid down conditions under which we would put government money into teachers' homes. If a school district will place the home on at least five acres of land, build it in accordance with plans that we submit, furnish it according to the standard we lay down, we will pay one-third of the entire expenditure. The school should be open in the winter instead of only in the summer, and we should get married men into the profession, because they can settle down and be citizens like other people. I am convinced that unless we succeed in getting, particularly in our foreign-born districts, accommodation for the teachers, we cannot hold them in the profession. If we had enough teachers in Alberta to-day to man every school in the province, we would be 400 short next Monday morning because the teachers would find they had no place to live and would go somewhere else. So what is the use of spending money to train teachers and then make it impossible for them to stay in the profession?

TEACHERS FOR FOREIGN-BORN

With regard to the Canadianizing of our foreign-born population, everybody is interested in it—the Daughters of the Empire, Women's Institutions, Canadian Clubs, Boards of Trade, Rotarians, Kiwanians, every organization that meets, and everybody that has an opinion urges the necessity of doing that work, but that work will never be done until we have an adequate supply of teachers, because the schools in the foreign districts are the last schools to be manned. If there is a shortage at all, it is felt there.

Can we face this situation? How long can we face it? What are we going to do about it? You see where we are with regard to teachers' supply. If we allow this Canadianizing process to wait until we have solved the question of the general supply of teachers and we have enough to man all the schools, we will wait for ever. My conviction is that the only way we are going to grapple with this Canadianizing problem effectively is to select a special body of teachers, train them for this special purpose, provide living accommodation for them in those foreign districts, and give them special pay and treatment. Otherwise we cannot handle this problem successfully. They used to tell us it was handled in the United States. They Americanized their foreigners and taught " one school and one flag and one language," but the war proved that to be a myth and a fiction.

This Canadianizing problem is one that we should thrash out pretty seriously, to the end that we may make some useful suggestions. If I am right in saying that we should have a special body of teachers specially trained and specially paid to handle this problem—and it needs handling in Ontario just the same as in Alberta—if we are to have that teaching body to grapple with the problem, it seems to me that it becomes a matter of federal responsibility. The people who are bringing in the non-English speaking people to our shores should be responsible for teaching them the English language and teaching them Canadian citizenship, and while the work probably should go on as other educational work does, under provincial departments, the Federal Government should be responsible for aid and co-operation. It is a national problem and a national concern, and it should be financed on a big, broad basis, and there should be recruited with the same serious purpose as we recruited armies for France, a body of men who will consecrate their lives to this work, who will take these schools by preference and stay with them and give them service because they are trained under State supervision to do so. That is the thing we have to fight for and get every organization in this country in possession of the facts, so that they will see the situation clearly and bring enough pressure to bear on the Federal Government to secure action. Aid is now provided for industrial education, agricultural education, and even for road-building. The matter of playing fair with the people that we have enticed to come to this country to develop it, is as vital and important as the other matters to which I have just referred.

Dr. THORNTON: We have done something, I may say, in the way of special training of teachers. While we have not got very far in Manitoba, we have passed this stage. Our foreign schools, so called, are not the last schools to be filled. We can get volunteers for those schools before we can for our ordinary schools. However, that is a matter too late to enter upon at this time.

Mr. KYLE: The chairman has given a very full description of the work in Alberta and anything which can be said about that in British Columbia I fear will not add materially to this discussion. A free employment bureau for teachers is conducted by the Department of Education and I am not aware of any shortage of teachers in the province. The third-class teacher is gradually being eliminated and as far as I have heard the normal schools have their usual quota of students, young ladies predominating. The extension of the normal school course to two years has been seriously considered, but I have not heard of any scheme for financing students while being trained. The provision of scholarships to encourage students of ability to take the training might well be adopted. The foreign population of British Columbia does not cause any great concern. Doukhabors who live in communities are compelled to send their children to school. Those over school age have even, in one district, attended night schools to learn English.

CUSTOMS DUTIES ON TECHNICAL SCHOOL EQUIPMENT

The CHAIRMAN: The secretary has a telegram that I think he wishes to read.

The SECRETARY: I will read this telegram which came to the Minister this morning. It originates from the school board at Winnipeg.

> " Minister of Labour. Winnipeg public school board strongly protests against duty imposed on imported equipment required in connection with technical schools, placing this department at a disadvantage as compared with the academic branch, for which scientific equipment, books, etc., are admitted free of duty on certificate that such equipment is required for educational purpose. Suggest that matter be considered at Conference on Technical Education now meeting."

Dr. THORNTON: I would suggest that this telegram be referred to our Resolutions Committee or a sub-committee of that body, say three, that would draft a resolution for presentation to the Minister of Labour and Minister of Customs.

The CHAIRMAN: Would it not be well to name a special committee of three to do that.

Dr. MERCHANT: We have been working on this for years. The Government required us to pay duty on hundreds of thousands of dollars' worth of equipment that have gone into our schools; practically all the equipment that went into the Toronto Technical School paid duty. Strong committees have waited on the Minister of Customs. Apparently it is not a matter of interpretation, but of getting the tariff amended.

Dr. THORNTON: We had better draw up a resolution on the basis of recommending to the Commissioner that these things should be permitted to enter free of duty, and if necessary to do so, the law should be changed.

Dr. SEXTON: I think it is a matter of interpretation and not of law. Under pressure of the war, they needed more money and we were advised that as regards scientific apparatus we must show that there is a scientific value.

Dr. THORNTON: I will suggest a committee of three: Dr. Merchant, Dr. Sexton, and Mr. Vaughan, as a sub-committee to draw up a resolution on that basis.

Personnel of committee agreed to.

The conference then adjourned for lunch at 1.20 p.m.

FOURTH SITTING, TUESDAY, OCTOBER 26th, 1920

The conference resumed at 3.p.m., Hon. G. P. Smith in the chair.

TEACHERS FOR FOREIGN-BORN

The CHAIRMAN: To facilitate matters regarding this Canadianizing problem, I have very hurriedly drafted a resolution, which may be changed and altered as you wish.—

> " Whereas the Canadianizing of our foreign-born people cannot be accomplished without the regular operation of the schools in non-English settlements;
>
> " Whereas there has appeared to be no possibility of procuring a body of teachers for these schools unless thay are specially recruited, specially trained and specially provided with suitable living accommodations;
>
> "And whereas this whole problem is one of national responsibility and national importance, and quite beyond the ordinary financial resources of the provinces;
>
> " Therefore, be it resolved that this conference is strongly of opinion that the Federal Government should, without delay, provide financial assistance to the provinces, so that an adequate supply of specially selected teachers may be trained for this work, and provided with homes of a permanent and attractive nature, in the hope that more men may be induced to undertake the work and to remain in the same school for many years."

Hon. Dr. THORNTON: I think there is something in the preamble that might be changed. I would suggest that the word " Canadianizing " be changed to " educating."

Dr. MACKAY: What is the suggestion?

The CHAIRMAN: That instead of speaking of the Canadianizing of our foreign-born people, we speak of the educating of our foreign-born people. It is not necessary that they be Canadianized; it is necessary that they be educated. I think it is a good suggestion.

The SECRETARY: Would you insert a clause providing that the resolution be transmitted?

The CHAIRMAN: Yes.

Hon. Dr. THORNTON: The essential thing is that this is a national work requiring national assistance.

The CHAIRMAN: I approve of that amendment, offhand.

Hon. Dr. THORNTON: And that a copy of this resolution be sent to the Premier, and to what other responsible ministers?

The CHAIRMAN: The Premier of Canada, the Minister of Labour, and the Minister of Immigration.

Dr. MCKAY: Perhaps, Mr. Chairman, I might indicate the situation as it exists in the Atlantic provinces. Some persons in the East may say that all this is in aid of the western provinces. Now, the Atlantic provinces are very glad to help the western provinces in every way possible, but they have a complaint. The Atlantic provinces at one time, in common with all the other provinces, owned the hinterland of old Canada; but when this hinterland was divided and attached to the other provinces we could not get anything without crossing the boundary. The other provinces got extensions: Quebec down the Labrador, Ontario the Hudson bay, and all the provinces some portions of the great West, but we got nothing, simply because of the accident that there was no hinterland near us. It is maintained that we should have had our share, and some persons have been so unkind as to suggest that the ability of the western provinces to give large salaries and attract our teachers away is founded primarily upon that unfair act. I do not want to appear at all to be putting the Atlantic provinces in the position of the Ireland of Canada, but I thought I would just mention that to you and mention that probably some person might bring it before the Dominion of Canada specially. I merely state the fact so as to make you acquainted with it. Of course, the leading educationalists down East want to keep the peace, to work harmoniously with all the other provinces, but there are some people who are very clamourous for what they call their rights.

Hon. Dr. THORNTON: What is the exact point at issue in the matter of rights? Are we paying too much salary to the teachers?

The CHAIRMAN: No, the point raised by Dr. McKay was that the people of the eastern provinces might object to the money of the whole of Canada going towards helping to solve this problem in the West.

Hon. Dr. THORNTON: Perhaps it will be of advantgae to discuss this situation. I do not think it is necessary for me to say a great deal, after the very comprehensive and impassioned address of our chairman this morning, But the first thing that I would like to get clear in the minds of everybody in this Dominion of Canada is the statement which is made in the second clause of the resolution, that this is a matter of national responsibility and national importance. It is not a problem of Manitoba, of Alberta, or Saskatchewan; it is a problem of Toronto, and it is a problem of Cape Breton. While the people of foreign origin were brought here in the first instance through the action of the immigration authorities and settled on the prairie lands, there have been reacting forces by which a large number of the children of these early settlers in the western parts of Canada have been attracted to the manufacturing centres; and you have this problem to-day in Brantford, you have it in Hamilton, you have it in Windsor, you have it in Toronto, and you have it in your manufacturing cities in the maritime provinces, to what extent I do not know, but you certainly have it in some degree. I know of the others, because I have visited these different localities. They have a bigger Ruthenian problem, in one way, in the city of Brantford, than we have in the city of Winnipeg and in Manitoba. Two years ago, in the year 1918, the national registration was taken. I happened to be in the city of Toronto and I cut out of the Toronto *Globe*, the Toronto *Mail*, and the Toronto *Star*, the same identical item which stated that, in order to take the national registration of the people in that city, there were engaged interpreters in thirty-four different tongues. As a matter of actual numbers, there are in the province of Ontario to-day a larger number of people of Ruthenian origin than there are in the province of Manitoba and the province of Saskatchewan together. They have drifted back. You see then that it is not a problem of the West; it is a national problem; and unless it is dealt with on this basis it is going to grow into a very serious problem.

Let us look at the problem to be met and how we have been trying to meet it. I believe you know as a matter of general knowledge, that in the province of Manitoba we started out to grapple with this question. We had to grapple with it in the first instance, by doing away with the provision that it was necessary for us in our public schools to teach any more than the one language. I agree absolutely with what Mr. Smith says, that we have no prejudice against a man having as many languages as he can carry. The more the better, if he can make use of them. But we believe that it is absolutely essential for national unity that every citizen of this country should know one common language, no matter how many more he may know, and that our responsibility in our public schools is that this language shall be taught, whatever else we may add to it. Then we had the problem of getting the teachers. We have been doing in a small way just the very thing that Mr. Smith referred to this morning. For four years back, during the summer months, we have had for three or four weeks a special summer school for training the teachers who go out into these non-English settlements, and it has been giving wonderful results. If we were in a position financially to enlarge the scope of this work and get a larger number of specially trained teachers we would be able to deal with the problem much more satisfactorily.

As to the question of residence, we have put up in those districts something like 200 schools and 100 teachers' residences during the four years that we have been at it; and we do not find as Mr. Smith has found, that the non-English districts are the last districts to which these special teachers will go. That is true where we have no residences, but where we have a residence in a settlement of non-English origin, we find that it is an attractive feature and we can get teachers there often before we can get them into our ordinary rural school districts.

This big problem which, as I have stated, requires special measures, special solution, special devotion of financial interest, was dropped on us as a result of a policy pursued by the national Government, and we think that this Government which pursued the policy of encouraging people to come to us from other lands than the Mother Land, and from the English-speaking countries, that same national Government should accept its responsibility in helping to give them and their children a fair deal when they are here, and should not load the whole burden on the provinces. That is the position Mr. Smith has taken. I think it is a sound position. It will not be very long until the Maritime Provinces are affected. It is all a question of people going to where they will find their occupation. They are crowded on their farm land. I know of a school district of only ten sections of land with a school population of 200 children, 20 to the square mile. When they grow up, where are they going? They cannot live on the farms at the kind of farming they do in Manitoba. They are not moving West into the towns on the prairies. Many of them are moving to the manufacturing cities in Canada. That is where they are going, and if we are able to give them an education in English we shall save the people in the cities of the province of Ontario from having that problem to deal with. I was speaking to Dr. Parkin, the chairman of the Trustees Board of the Rhodes Scholarships, just two years ago in the city of Ottawa. He was telling me of his experiences down in Massachusetts, right in the home of the Pilgrim Fathers, in the little manufacturing towns that had established themselves along the waterways in the state of Massachusetts. He told me that in a little town of some 10,000 people the police magistrate gets eleven interpreters to help him to get on with his work of the administration of justice. You see it is well to get the principle established that we must get together in solving this problem.

We have decided to leave the word "Canadianizing" out of the resolution.

I do not like it. I have been very careful to abstain, in the discussion of this question, from any phrase which might carry with it any suggestion of offence. We coined, and always use the phrase, "new Canadians" showing that we are not holding these settlers aloof or regarding them as any other but Canadians. We have to recognize that there are conditions and problems in dealing with them that we do not have with the general mass of our community: at the same time, we use the phrase "the new Canadians". I do not think that this question of taking our new immigrants and getting them educated along the lines of the general community is a matter which requires federal assistance, because it is a national problem.

Mr. BLACKLOCK: How do you propose to use any funds that might be available?

Hon. Dr. THORNTON: We would use it to aid the districts in building teachers' residences. That would be the first thing.

Dr. McKAY: Mr. Chairman, can it be indicated to what extent the various provinces are responsible for a portion of the immigration? I think that if the Dominion Government is introducing people who are not prepared to become citizens, it should make some provision to assist any province which may have to deal with those immigrants. But do the provinces themselves to any great extent encourage this foreign immigration?

The CHAIRMAN: We have no voice in it. We have never been consulted. But upon every occasion that we ever had an opportunity we point out the danger and the desirability of selecting our people, and then of doing our duty by them, at least providing an opportunity for them to help themselves. The problem is quite beyond their ability to handle, in many, many cases, and unless we go in and do something specially for them, the problem will not be solved.

Mr. ROGERS: Mr. Chairman, I am sure this will appeal to everybody here as a matter of very urgent importance. All our new citizens should receive proper education and everything possible should be done for them to the end that they may become good Canadian citizens. But it seems to me that this is more especially a problem of the West. Every province has its special problem; this is one of the problems of the West, and I do not think it is altogether a proper principle to resort too readily to the Dominion for assistance in solving these various special problems. If anything is to be done in the way of providing funds from the Dominion treasury, to add to the amounts to be expended in the various provinces for education, I think, sir, the fairer way to do would be to follow the analogy of what has been done for technical education and for agriculture, by making a grant from the Dominion treasury, which should be apportioned to the various provinces and used by them, each for the special needs that may exist in that province in the line of education. It seems to me that if that were done it would better meet the requirement of fairness.

Hon. Dr. THORNTON: That is a reasonable suggestion. I think your idea is good.

The CHAIRMAN: Has not every province a percentage of foreign-born people?

Mr. ROGERS: The problem is absolutely non-existent in Prince Edward Island. Apart from French, the only language you ever hear there is English.

Mr. PEACOCK: Mr. Chairman, I think that the problem is developing, as was pointed out by Dr. Thornton. It is developing in the province of New Brunswick in the mining centres, and it must be to a greater extent in the province of Nova Scotia. I see no reason why some such scheme as this might not be worked out. The only difficulty that arises in my mind in connection with this proposal is the basis of distribution of federal money.

Dr. MERCHANT: I would like just to emphasize a point made by both Mr. Smith and Mr. Thornton, as to the relation of this problem to Ontario.

My work in the organization especially of night schools, has brought me into very close touch with the foreign population of the province in many of our cities, and I must say that all they have said is absolutely true. Take a place like Fort William, for instance; there is a real problem in education for Fort William, the problem of the education of the foreigner. Take our new industrial centres. Take a place like Welland, for example, where probably forty or fifty per cent of the people were brought there by the development of the Hydro-Electric, and there is a large proportion of foreigners. I could name many of these cities. It is a real problem in this province, and I have very much pleasure indeed in supporting the resolution which has been moved.

Mr. PEACOCK: The problem certainly exists; but let us look at it from the other side for a moment. Here is one province which may have advantages that would attract to it the new people that are coming in. Those who are coming in certainly represent an asset to that province, which is a very material consideration. The fact that this problem was raised by the incoming of these people would in itself, it would seem to me, constitute but a slender basis upon which to go to the Dominion Government and ask for funds. But it might be well if there could be some distribution of funds for the general promotion of educational work. Take, for instance, the one matter of cottages for teachers. These are needed in New Brunswick as well as in other provinces for the carrying on of our educational work. If Dominion money were granted and could be used in a service like this, it would be generally acceptable. It seems to me this would be a basis upon which we could all better stand than on this new problem in particular, which, after all, while it is a problem, also carries with it an asset for the particular provinces interested.

The CHAIRMAN: I should like to make a remark on Mr. Peacock's last statement. The asset of new settlers is more federal than provincial. A new settler comes into this country and becomes a consumer, He purchases his goods from eastern manufacturers, or, in the alternative, he buys from foreign countries and pays a duty to the national treasury, not to the provincial treasury. The greatest taxation that people in this country pay is to the Dominion treasury. Our only provincial taxation is licenses and a few little odds and ends; and a very, very small direct tax of one mill on the dollar in Alberta and in some others, I believe. These immigrants are a national asset, more than a provincial asset, even from the standpoint of revenue. But, apart from this phase of the question, is it not true, as Dr. Thornton has pointed out, that this problem is present in every province, or is rapidly becoming so located, and it is therefore a national problem. Supposing these people were all confined to one province, or two or three provinces in the West, we know they are not, it would not alter the question; it would still be national, and the fact that they were permitted to grow up in ignorance and as strangers in a strange land, would be as unfortunate for Toronto, and Montreal, and Halifax, and St. John as it would be for Edmonton and Calgary. The duty and the responsibility are national and not provincial. There is no single matter that can be thought of which is more decidedly and wholly national in its bearings. In our western province, it happens that the immigrants to which we are referring are located principally upon the land; in Ontario they are located principally in cities and in industrial work; in Nova Scotia perhaps in the mines, and so on. But because in one province they are in the cities and in another province they are on the land, that does not alter the problem. The thing has to be faced in our province, and it has to be faced in a national way, and it is unfair to throw the entire burden upon the province that happens to be the victim of the national policy which has brought about the situation.

Mr. PEACOCK: Mr. Chairman, I suppose we can say that education in all its bearings is of national importance.

The CHAIRMAN: Yes, and that is the ground I always take and I think we should take. The providing of teachers is a national obligation, and in the United States it is so recognized. The Federal Government in the United States have taken this matter up and they are giving the very grant that we are asking for in this resolution, and they are going after the matter strongly. They call it Americanizing their foreign people. The Washington authorities have taken this matter up whole-heartedly and are co-operating with the various states of the American Union for its solution. They are also taking up other educational matters of national importance: the supplementing of teachers' salaries, and the training of teachers. Education is a national matter and must be thought of in that way. We must train ourselves to think of it in that way, or we cannot approach it in the spirit in which it should be approached.

Mr. ROGERS: Could we incorporate the idea of a general grant, apportioned to all the provinces?

Mr. PEACOCK: Can you propose a basis for distribution?

The CHAIRMAN: I do not think that is essential now. Let us decide upon the principle first. We will heartily co-operate and work it out in any way suggested by the Federal Department. In the United States, the Department of Labour is handling this problem. I am quite willing to leave it to the Department of Labour here, since they are interested in technical education and some other things. There will not be the slightest opposition on our part to any proportionate assistance that may be given to other provinces for any purpose in the world. We will back it to the limit. But if you start putting such details in this resolution you might as well throw it into the waste-paper basket.

Mr. ROGERS: Do you not think you would more easily get the support of Parliament to a proposition to appropriate a sum of money apportionable to all the provinces than to a grant of moneys which would be largely expended in one, or two, or three provinces?

The CHAIRMAN: Oh, but that would not.

Mr. ROGERS: I think it would.

Mr. PEACOCK: You could suffer not at all.

Dr. MACKAY: That might be done in Parliament perhaps more effectively than by our working out the details here.

Mr. ROGERS: You understand, gentlemen, I am prepared to support any proposition for the expenditure of Dominion moneys looking to the solution of this problem; I am certainly with you there, but I really think that a grant apportionable to all the provinces, for their educational needs, would more readily meet with the approval of the national legislature. However, you may put this thing as it is.

Dr. MERCHANT: I think we are in a position with regard to this problem similar to the position we were in with regard to technical education ten or twelve years ago when we were breaking ground. We are initiating this work and asking the Dominion authorities to consider a grant. I do not think we are in a position to lay down the basis, any more than we were then in a position to lay down a basis for technical education.

The CHAIRMAN: That is the point.

Prof. GILL: I would like to point out that no federal grant which is given for a specific purpose will benefit each province equally. The grant for agricultural education divided in proportion to population does not benefit the provinces with a large rural population to the same extent as it does the provinces with a small rural population. The same is true, in a reverse direction, of the grant for technical education. In this case the province of Prince Edward Island, the population of which is 80 per cent rural, finds that it can use only a small fraction of its share of this grant. The same will be true in this province if a federal grant is given to educate the foreign born. On the other hand, it may be said that only a short time ago this province received a special federal grant which did not benefit any of the other provinces. I refer to the building of the car ferry by the Federal Government. In considering questions of this kind, it is necessary to extend our thoughts over a wide range of time and activities. If this is done it will be seen that the averages of the benefits received by the several provinces from federal grants are much the same in value.

Mr. ROGERS: But there are certain matters which are reserved by our constitution to the provinces, and education is one of them. Road-building, ordinary highway building is another. Still, Parliament in its wisdom has made a grant in aid of the construction of trunk roads in all the provinces; and Parliament has also made to all the provinces a grant in aid of technical education, which is apportionable upon certain principles. Now, the suggestion I made was that if a grant is asked for in support of education—the education of the foreign-born, for instance—in like manner, by analogy to the other two cases I mentioned, the grant should be made apportionable to all the provinces and used in the various provinces for the special educational problems that there exist. It seems that the education of the foreign-born is a special problem of the western provinces and possibly in some of the urban centres of Ontario, but there are other provinces in which it does not exist. If a grant were made which would be divided amongst the various provinces for the purposes of education, we should find ample use for it and could use it in such a way as to advance the national interests in our own province, and those in the West could use their grant also for the advancement of national interests, applying it in their case to the education of the foreign-born.

Hon. Mr. SMITH, having to leave the meeting, asked the vice-chairman, Dr. A. H. MacKay, to take the chair.

The VICE-CHAIRMAN: As there appears to be no more desire to discuss the matter, perhaps the secretary might read the resolution.

The secretary reads the resolution.

Mr. FLETCHER: Mr. Chairman, it might not be out of place for me to move that resolution as one who is very vitally concerned in the problem with which it deals.

Dr. MERCHANT: I have no objection to seconding the motion. I would like to point out, however, that it is so worded as to imply that the money is to be devoted to a method of meeting a problem which applies in rural districts only, and not in the urban centres.

Hon. Dr. THORNTON: There is something in that.

Dr. MERCHANT: That is the only objection I have. The method of meeting the problem in Ontario would have to be quite different. I think we could devise a very effective plan of meeting the problem in our larger cities, but it would have to be quite different from the method outlined in the resolution.

Prof. GILL: I would suggest that the second paragraph of the preamble be omitted.

Dr. MERCHANT: I have no particular objection to that.

Suggestion agreed to.

Prof. GILL: I would suggest that the resolution be amended to read as follows:—

> "Therefore be it resolved that this conference is strongly of the opinion that the Federal Government should provide financial assistance so that an adequate supply of specially selected teachers may be trained for this work."

Hon. Dr. THORNTON: You might add, "and in rural districts provided with homes."

Dr. MERCHANT: That is all right, so long as you make it quite clear that it does not cover the whole field.

The VICE-CHAIRMAN: The motion has been made by Mr. Fletcher and seconded by Dr. Merchant. Are you ready for the question? The secretary will read the resolution as amended.

The secretary reads:—

> "Whereas the education of our new Canadians of foreign origin cannot be accomplished without the regular operation of the schools in non-English settlements;
>
> "And whereas this problem is one of national responsibility and national importance, quite beyond the ordinary financial possibilities of the provinces;
>
> "Resolved that this conference is strongly of the opinion that the Federal Government should, without delay, provide financial assistance to the provinces, so that an adequate supply of specially selected teachers may be trained for this work, and provided in rural districts with permanent and attractive homes;
>
> "Resolved further that copies of this resolution be forwarded to the Premier of Canada, to the Minister of Labour and to the Minister of Immigration."

Resolution was carried.

CUSTOMS DUTIES ON TECHNICAL SCHOOL EQUIPMENT

Prof. GILL: The next question is the resolution regarding customs duties on scientific apparatus, etc.

Dr. MERCHANT: Yes, we have it here. The committee has drawn up a resolution which I think will meet the situation.

Mr. VAUGHAN: acting as secretary for the committee, reads as follows:—

> "Whereas the customs duties imposed on machines and equipment required in technical schools for educational purposes, unduly discriminate against the proper and efficient development of technical education in comparison with other departments of education for which scientific equipment is admitted free;
>
> "Resolved, that this conference requests the Minister of Labour to intercede with the Department of Customs with a view either of securing an interpretation of the regulations that would admit of including on the free list all such equipment used for educational purposes under the regulations of the Technical Education Act, or of so amending the existing regulations as to admit such equipment free of duty."

The VICE-CHAIRMAN: I move this resolution be adopted.

Mr. ROGERS: I will second that.

Prof. GILL: I have the Customs Tariff here and I will read the clause which relates to this question:—

> "Philosophical and scientific apparatus, utensils, instruments, and preparations, including boxes and bottles containing the same; maps, photographic reproductions, casts or models, etchings, lithographic prints or charts; all articles in this item when specially imported in good faith for the use and by order of any society or institution incorporated or established solely for religious, philanthropical, educational, scientific or literary purposes, or for the encouragement of the fine arts, or for the use or by order of any college, academy, school or seminary of learning in Canada, and not for sale, under regulations prescribed by the Minister of Customs—*FREE*."

Dr. MERCHANT: The Customs officials claim that machinery does not come under any of the heads mentioned.

Mr. VAUGHAN: The duty on machinery would absorb all of the technical education grant for equipment.

The VICE-CHAIRMAN: Do work benches come in free for technical schools?

Dr. Merchant: I do not remember the interpretation in this case. I think not.

The Vice-Chairman: Do manual training tools come in?

Prof. Gill: No.

The Vice-Chairman: Has anyone anything further to say?

The motion was agreed to.

Special Matriculation Course for Technical Schools.

Prof. Gill: I think Mr. Campbell has something to bring before the conference.

Mr. Campbell: Mr. Chairman, I wish to speak a few minutes on the question of a special matriculation course for candidates from technical schools entering engineering departments or the home economics department of the university. The technical school, speaking generally, is intended to prepare students for entrance into industrial pursuits, and also to prepare students for entrance into these two faculties of the university which I have mentioned. Now, in order to provide as large a proportion of time as possible for practical work in the technical schools, the time for study of ordinary or academic subjects has necessarily been cut down. Moreover, even for these academic subjects, the character of the instruction has been modified so as to have a direct application to the practical work, especially in mathematics, science and drawing. In connection with the courses given in the technical schools there are two important factors: one is the great reduction in time for academic subjects and the other is the character of the instruction in related subjects.

The situation in more than one province is this, that many pupils who enter the technical sshools and take up the ordinary industrial or technical course, later decide that they would like to take a univertsity course. But the university matriculation examinations are based on the ordinary high school course. The result is, that after starting the pupils on a course in which fifty per cent of the time is devoted to shop work and drawing, and fifty per cent to other studies, the school has found it necessary to reduce the time given to shop work until, in the final year they have got down to an ordinary high school course of study. I think I am quite safe in saying that in some of the schools the amount of time given to shop work in the final year is nil. Consequently, if the present matriculation requirements are continued, the technical schools must conduct a course similar to that of the ordinary high school. It seems to me that this is a situation which calls for a special matriculation examination.

In the technical schools we shall have to give a good course in English, mathematics, science, history, and civics. These subjects can be given without any reduction of the time that is now given to those subjects in the ordinary high school. That would leave the other half day in which to take up such work as drawing and shop work. Possibly physical culture should be added. That would leave the whole of the work in the technical school on the basis of half-time for the academic subjects, and half-time for shop work and drawing.

I have worked out the matter of subjects and compared the time allotments with what is given in the average high school, and have found that in English we could give 300 minutes a week to grammar, composition, literature, spelling, and penmanship, 90 minutes to British, Canadian or industrial history, 315 minutes to arithmetic, fundamentals of business, algebra, geometry and trigonometry, 240 minutes to geography, physics, and chemistry, 225 minutes to drawing, and 600 minutes to shop work. The problem is a simple one because the students are going into a certain definite course, and shop work, at any rate, may be simplified. It is not necessary to have printing, plumbing, and a number of subjects like that for students taking this course. Included in the shop work I would put in some work on power; not necessarily an elaborate course, but the fundamentals of gas, steam, and electricity. Zoology, agriculture, nature study, Latin, French and German would be eliminated. There would be a somewhat similar course for the girls. Shop work for the girls would include domestic science, etc.

In conclusion I would move "That this conference go on record as in favour of a special matriculation for students entering the engineering faculty and the home economics department of the university, and that in the drafting of the courses required the technical departments of the provinces be represented."

The VICE-CHAIRMAN: How would your university look upon that proposition?

Mr. CAMPBELL : I can say that the University of Alberta has practically accepted the proposal already. The matter has been placed before the President of the university and we have had a committee of university men working on a course and upon the subjects and method of examination. I think it would be quite safe to say that the University of Alberta will accept such a matriculation this year for candidates going up from the technical schools in Alberta.

The VICE-CHAIRMAN: I know that the university authorities are generally pretty conservative; I do not think that those in Nova Scotia consider that I am altogether sound on that subject. I am sorry Dr. Sexton is not present here, so that he might tell us exactly how things are there. But Dr. Merchant, of course, has views on this matter, and Toronto is sound from the point of view of education, both ancient and modern.

Dr. MERCHANT: I may say that the University of Toronto has prescribed for entrance into the faculty of applied science requirements which are not in accord with those proposed. I sympathize quite strongly with the attitude that Mr. Campbell has taken. So far the engineering faculty of the university has not recognized the type of work that we are doing as important from their standpoint. They do not recognize it at all. Some go so far as to say they do not care whether we give physics or chemistry in the high school. These subjects have been optional in the matriculation examination.

Mr. ROSS: I wish to say, Mr. Chairman, that the attitude of the University of Alberta has been all that could possibly be expected. We have had quite a number of conferences with regard to science matriculation examinations, and I must say that the head of the engineering department of the university was quite enthusiastic in regard to the course that was outlined. The president of the University was also enthusiastic, as well as four or five other representatives. They do wish, however, that the course be kept up to a high standard in English, in mathematics and in science, and have intimated that as long as we gave them a four years' course in these subjects, they would be enthusiastic in receiving such as matriculants in the engineering course.

Dr. MERCHANT: Without languages at all?

Mr. ROSS: Yes.

Dr. MERCHANT: Personally I am not in favour of going that far. I believe that these students should have a language.

The VICE-CHAIRMAN: Does not Columbia University go nearly as far?

Prof. GILL: Yes.

Mr. ROSS: The reason for this examination being suggested was the establishment in Edmonton of a technical school. Quite a number of students that had taken our grade 8, also our grade 9, went into this institution and remained there for two or three years, and the parents at last woke up to the fact that there was no outlet; that if their children wished to enter the university the training they had received would be of no benefit to them. The university, as well as the Department of Education, realized that we had to devise some means whereby these students should get their technical education and prepare for the higher work in engineering if they wished to follow that line, and during the last year or two the question has been under consideration. It was brought before the senate of the university, and the senate ordered that the committee look into this course and, if it is satisfactory to the committee, there is no doubt in my mind that it will be passed by the Senate during its next meeting, which will be held some time next month. I think that a modern language would probably be all right, but I do not think there is much benefit in it.

Dr. MERCHANT: They are not compelled to take Latin, with us; they have a choice in two languages.

Mr. CAMPBELL: There is just one word I would like to say regarding the elimination of the languages. I looked up the language requirements in the engineering course at Queen's University and I found that after the student entered the university there was no French or German required in the engineering course; and in McGill there is no modern language required in any of the engineering courses except architecture, and French is required only in the first year of that course.

Dr. MERCHANT: Are the languages entrance requirements in McGill?

Prof. GILL: Yes. Both in McGill and Queen's.

Mr. CAMPBELL: In Toronto no language is required after the student enters the university, except the first year in architecture and chemical engineering courses. I have talked to a number of engineers in the province of Alberta, all of whom had taken French or German. When asked for an opinion, the reply would be: " The purpose of putting on French or German was to enable the engineer to read French or German text-books or scientific works after they left the university," but I have yet failed to find a single engineer who, since leaving the university, reads any French or German book to get science.

Dr. MERCHANT: Pardon me, Mr. Campbell. That is admitted, and it is the argument used for pressing the need of studying French, or German, or Latin in the high schools. They say we have no time for it in the engineering course.

Mr. CAMPBELL: I may say that I took French and German for two years in Toronto University. Science students were required to take it for the ostensible purpose of reading scientific German and scientific French, but it was a dead letter with me. I could not keep up with the work in English. I read French occasionally, for the news, or something like that, but not for the purpose for which I was studying French at the university.

Mr. KYLE: I am glad this question has been brought up, because in British Columbia the university authorities insist upon the science students entering the arts course and finishing one year before they begin the course in science. Ontario is pointed out as an example and we are told that British Columbia ought to follow in their footsteps.

Dr. MERCHANT: That is not done in Ontario.

Mr. KYLE: I am astonished to hear that. The university authorities, I may say, make concessions to the technical students at the matriculation examination. One language only other than English is insisted upon, consequently French is included in the course. A special paper in practical mathematics, which includes algebra and one on trigonometry, is given in lieu of Euclid and pure mathematics. A special paper in physics and chemistry is also set.

Mr. CAMPBELL: Are these papers in addition to the ordinary papers on the subject?

Mr. KYLE: No! Special papers for the students who take the technical course. Practical mathematics takes the place of pure mathematics; and the questions in physics and chemistry are specially arranged, but the students must take French. Consequently when the technical students enrol, those who desire to aim for the university are placed in a class by themselves and they are prepared for the matriculation examination. Fifteen pupils sat last examination and thirteen passed into the university. These boys would all be required to enter the arts course and take one year. The Department of Education are naturally very much afraid of railroading boys out of the university.

The remainder of the boys who have no intention of entering the university are encouraged to proceed to the vocational courses in the technical school.

No concessions are made for the girls who attend the home economics course and who wish to pass the matriculation examination. A special paper in chemistry, physics, and physiology is set for the leaving examination, but while this examination is recognized for entrance to the normal school, the university authorities take no cognizance of it whatever. As preparation for normal school and the teaching profession the home economics course is admirable and consists of the following: English, arithmetic, cookery, and the chemistry of foods, physiology and the laws of health, sewing and dressmaking, millinery, music, drawing and design.

While a universal matriculation course throughout Canada would be desirable, yet it must be stated that for the present the university authorities of British Columbia are endeavouring to be perfectly fair.

Dr. MERCHANT: Referring to the girls' work, it is to be noted that the course in household science leads up to the B.A. degree and consequently students in this department are required to take the ordinary matriculation in arts.

Mr. PEACOCK: Can they not work toward the degree of B. Sc.?

Dr. MERCHANT: Oh yes, they could, but the fact of the matter is they all take the other. Most of the girls are after a position in a high school.

Mr. ROSS: The committee which dealt with our proposed course consisted of the Dean of the Faculty of Engineering, Mr. Campbell, who represented technical education, and a third man who represented general educational work, The university had the opportunity to state any objections while the course was under consideration. So it represents a combination of all interests, and I think that combination would be better than what might be drafted by any university.

Prof. GILL: Yes, but you must not lose sight of the fact that the matriculation requirements are prescribed by the universities. To determine if it were possible to secure some agreement between the universities on this question I made a study of the requirements of the different universities, and drafted a matriculation course which I thought might be accepted by all. It represents the average of the requirements of the different institutions. I have copies of this course at hand which I will now pass around. (*See* Appendix.) This course has been submitted to the different universities for their consideration. If it is found that approximate agreement cannot be reached nothing further can be done. If the majority of universities agree to accept this course, as it is, or modified, it follows that a special examination must be given. I may say that two of our universities have already agreed to accept this course practically as it stands, and are ready to appoint a representative on a proposed science matriculation board. Such a board would control the requirements and examinations for entrance to the science departments of all the universities. I think that the entrance requirements of the universities throughout Canada are not so far apart as to make this impossible.

Dr. MERCHANT: The matriculation examination is an examination prescribed by the universities. We cannot prepare matriculation examinations. What we have to do is to bring our ideas to bear, as Prof. Gill is already endeavouring to do, upon the university authorities.

The VICE-CHAIRMAN: We might make a recommendation, however, which would give our opinion some solidarity, and which might perhaps be more likely to affect the opinions of the university senate.

Mr. CAMPBELL: We can express an opinion to which the universities may give attention.

Dr. MERCHANT: I believe we should work along lines on which we are likely to get results. If it is simply a resolution for the secretary, it will not do any good. What we should do is to endeavour to influence somebody in order to bring this proposal into operation. I am not sure how to get at it.

The VICE-CHAIRMAN: If this resolution were supported pretty unanimously by the conference, it might form a good method of approach to the universities, and possibly we would make some advance.

Mr. PEACOCK: The question is a complicated one. I wonder if the universities set the entrance examinations in every case. This is not the case in New Brunswick at least. I sympathise with the idea of getting away from some parts of the traditional college entrance requirements. I think, however, that we should go very slowly, perhaps that is not the right term; we should be very careful lest we let the impression get abroad that we who stand for the practical lines of education are endeavouring to pull down standards. I, for one, would be very much opposed to having a matriculation examination in the province of New Brunswick that did not require two languages, one of which would be English. We do not feel that Latin is necessary in this particular connection. I think that is the consensus of opinion. On the other hand, there is the new element of shop work coming in. I think our expression of opinion should be one that would place this conference in a position of not trying to reduce the standard. Now, Mr. Chairman, I think this should be disposed of quite quickly, and I do not regard it as a great national question at all, as other questions that have been referred to here may be. There is a danger of our getting into the grip of the university and catering to this idea and forgetting, after all, the great big field which is open to the influences of vocational education. A very very small percentage of the people are ever going ahead to university work. I have not heard that there is any great complaint on the part of the engineering people as to the preparation that is now being carried on for college entrance. I have heard a very great demand throughout the country for greater preparation for entering industry itself. Now, this is a side issue. That course is not a course that would prepare boys or girls of secondary school age to enter industry at all; it is only to prepare them to enter the university. I should like, before this conference closes, to hear Prof. Gill outline some of his policies for promoting vocational education in the provinces, so that we would go home feeling that he had some working plans that we could put into effect in some of our communities.

Mr. CAMPBELL: I would just like to say one word about the resolution before us. If it is the wish of the meeting that there should not be any action, it seems to me that no record of it should appear in the minutes; because if a report is made of this meeting and the discussion shows that the members of this conference are opposed to such an idea, I think that the universities will do very little for us.

Mr. PEACOCK: Put your motion forward.

Mr. KYLE: Mr. Chairman: Would it not be well to bring this question before the meeting. It is not a small question in British Columbia. It is very important to the pupils who enter the technical and home economics courses and who discover after they have attended for one or two years that they would like to enter the university. I should like to see Mr. Campbell insist on his resolution and bring it to a vote.

Mr. FLETCHER: Mr. Kyle has just touched on the one point in the whole matter which would lead me to support the resolution, viz., that there may be some of these boys who go in for the technical course who might take a notion later to follow on with the work in the university, and who, when they first entered, had the intention of going direct from the technical school into industry. The technical schools must look forward to training the young men, not for the university, but for industry. The whole object of the Technical Education Act is to train the young people for industrial pursuits, but it is possible that an odd student might change his mind before he has finished the technical course, and want to go on.

If possible, we ought to keep the way open for that student to go to the university and profit by that institution. There might not be very many of them, but our universities are public institutions, supported by public money, and their doors should be open to these young people, even though there were only one or two a year.

Mr. CAMPBELL: The technical school should not itself be a blind alley.

Mr. FLETCHER: No, it should not.

Mr. PEACOCK: But its outlet should be industry rather than the university.

Mr. KYLE: Is not the university course to train people to be leaders in engineering?

Mr. VAUGHAN: Mr. Chairman: We are a newly organized body discussing matters relative to industrial education, and meeting for the first time. We are fortunate in having as federal director a man who has been in the engineering business, both as engineer and professor, and I would have a great deal of respect for his opinion as to whether or not he would like another year to work on this question with the universities before any formal action is taken by those specially interested in technical education. I would like to get his opinion on the value of the proposal. The point is, would we strengthen our case any more by passing this resolution now, or had we better leave the matter in the hands of the Federal Director until another meeting?

Prof. GILL: In reply to Mr. Vaughan, I would like to say that we cannot get along very far with technical education or vocational education—call it what you wish—if we consider it apart from the whole educational system which has been in process of development for centuries. We must consider in all our work the educational system as a whole, and we must co-ordinate it with that of education in general; otherwise we will waste a great deal of energy.

Mr. FLETCHER: I think Mr. Vaughan's point is this: you have started out to get the opinion of the university authorities on a common matriculation standard. Would it strengthen your hand in working with them if this conference endorsed the proposal, or would it be as well for us just to let it go with the discussion in the meantime?

Prof. GILL: I wanted to make the other point first. The second point I wish to make is that the universities do vocational work, the same as we are proposing to do, only it is of a higher order. For instance, the universities train men to practice medicine, which is a definite vocation.

Mr. FLETCHER: The bulk of university work is purely vocational work.

Prof. GILL: The biggest part of it is vocational work. The science matriculation course as proposed here, is simply a preparatory matriculation course to the university vocational course; it is a preparatory vocational course. Referring to the resolution, it seems to me that what is required is a special matriculation examination, rather than a special course. Any technical school can establish a matriculation course. I would therefore suggest that the resolution read thus:—

> " That the universities should be urged to provide a special matriculation examination."

Mr. CAMPBELL: That is the intention, that a matriculation course should be provided. That is usually laid down by the university.

Prof. GILL: The course is not laid down by the university, but the examination is.

Mr. CAMPBELL: And the course.

Prof. GILL: The universities do not care whether the student comes from a technical school or from a high school as long as he passes their examination. If they were asked to provide a special matriculation examination based on a special matriculation course instead of the ordinary matriculation examination, then your resolution would lead toward something.

Dr. MERCHANT: By that word "examination" do you mean a course and an examination? It seems to me it is a special course we need. It would not help us any to give a special examination on the same old course.

Mr. ROGERS: It means to fix the special matriculation requirements.

Dr. MERCHANT: It is a question of the prescription of work rather than the examination.

Prof. GILL: That is right, you want both. I suggest that the resolution be changed to read:—

> "That the universities be urged to provide a special matriculation course and examination for candidates from technical schools who desire to enter the faculties of engineering or home economics in the university."

Mr. ROGERS: "Urged to prescribe." They have to prescribe it.

The VICE-CHAIRMAN: "Provide" or "Prescribe"? Which shall it be?

Prof. GILL: "Prescribe."

The VICE-CHAIRMAN: It would read then:—

> "Resolved, that the universities be urged to prescribe a special matriculation course."

Are we agreed on that?

Resolution adopted unanimously.

Dr. MERCHANT: It may be of interest to tell you—it will take only a minute—in connection with the course in commerce, the university accepts, as optional subjects with us, instead of certain subjects, the practical work done in typewriting, shorthand, etc., at the high school. Now, we are simply asking the university to go a step further and to accept what we are doing in the shop work.

Mr. WALLACE: I am not here to discuss technical education, but I might say that the matriculants for the universities in New Brunswick write their examinations, or at least a very large percentage of them in July. That is an examination which is prepared and held under the direction of the Board of Education, a body entirely separate from the governing body of the universities. The university has nothing to do, as a body, with prescribing courses. The high school course is the course upon which the matriculation examinations are written, after the passing of which they enter the university.

Dr. MERCHANT: Is the university represented on the Board of Education?

Mr. WALLACE: The university president and the chancellor of the university are members of the Board of Education, but the university senate is an entirely different body from the Board of Education.

Dr. MERCHANT: Is the university represented on the body that draws up the high school courses?

Mr. WALLACE: Yes. The chancellor of the university and the president of the senate, who is the chief superintendent of education, are members of the Board of Education, who authorize the course of instruction. We have there high school leaving examinations, which are in part the same as the matriculation, and which admit candidates to the university for engineering and for forestry as well, I think. That course is the same as the regular course for the university matriculation, except that there are four options, two of which the candidates must take. The options are Latin, chemistry, physics and Greek. The engineering candidates take the same subjects as the matriculants for the regular course, except that they take two of these options.

The VICE-CHAIRMAN: They need no foreign language?

Mr. WALLACE: They take French as part of the regular course for matriculation. So far as I have heard, as Mr. Peacock has already stated, there has been little or no objection to that system. But that is the way the courses are prescribed, and the university as a body has nothing to do with it.

There being no more questions for discussion, the conference ended.

APPENDIX

SCIENCE MATRICULATION COURSE

For Boys Preparing to take up a College Course in Engineering

Subject	Time Allotment Minutes per week.				Total Time.	Per cent of Total Time.
	1st year	2nd year	3rd year	4th year		
English	300	300	300	300	1,200	16·5
Penmanship	30					
Spelling	30	30				
Grammar	60					
Composition	90	150	180	180		
Literature	90	120	120	120		
Mathematics	300	330	360	390	1,380	19·0
Arithmetic	150	90				
Algebra	90	120	180	120		
Geometry	60	120	130	120		
Trigonometry				150		
Science	180	180	210	210	780	10·7
Geography	90	30				
Physics	90	90	120	120		
Chemistry		60	90	90		
History and CIVICS	90	120	150	150	510	7·0
British	90	30	30			
Canadian		90	90	60		
Industrial			30	90		
Freehand Drawing	90	90	120	120	420	5·7
Architectural	30	30	30	30		
Design	60	60	90	90		
Language (One)	150	150	180	180	660	9·0
French						
German						
Spanish						
Shopwork	360	360	360	360	1,440	19·7
Woodwork	360	180				
Forging		180				
Foundry			180			
Metalwork			180	360		
Physical Culture	240	240	210	210	900	12·4
Gymnastics	60	60	30	30		
*Games	120	90	60			
†Drill and Marches	60	90	120	180		
Total Time	1,710	1,770	1,890	1,920	7,290	100·0

* Games should include all pupils and should be supervised.

† Marches should be based on some objective, such as visiting an industrial establishment, "Boy Scout" training, examination of geological formations, etc.

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THE
DEPARTMENT OF LABOUR, CANADA
Hon. JAMES MURDOCK, Minister of Labour

Vocational Education

NUMBER 1 JANUARY, 1922

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DEPARTMENT OF LABOUR, CANADA
Hon. JAMES MURDOCK, Minister of Labour

VOCATIONAL EDUCATION

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PREFACE

In October, 1920, the National Conference on Technical Education unanimously adopted the following resolution:—

> "Resolved that the Conference ask the Federal Department of Labour to issue from time to time suggestive courses of study, texts, pamphlets, bulletins, monographs, and other material which would assist provincial officers in the problems of organization, development and administration of technical education."

The Director of Technical Education for Canada believes that one of the most helpful services the department can perform is to assist the provincial directors in keeping the teachers and school officials informed about the changes and developments in vocational education in Canada and throughout the world.

New schools are being built every year involving important changes in construction and design; systems of vocational education are being established to meet the particular needs of the different classes of communities; new methods of teaching and additional courses of study are being developed; better textbooks and important books on the problems of vocational education are frequently published; valuable articles appear in trade and professional journals; and many important changes take place which affect the organization and administration of vocational education.

The experiences of the men who introduce these changes are of value to others only in so far as they are known. The purpose of these bulletins is to distribute to all those engaged in the organization, administration and operation of vocational education programs, information which will assist them in solving their present problems and in perfecting plans for future developments.

TECHNICAL OR VOCATIONAL EDUCATION

The Purpose and Scope of the Educational Work Benefitted by the Technical Education Act

In July, 1919, the Dominion Government passed an Act for the promotion of technical education in Canada. In this Act, "technical or industrial education or instruction means and includes any form of vocational, technical or industrial education or instruction, approved by agreement between the Minister and the Government of any province as being necessary or desirable to aid in promoting industry and the mechanical trades, and to increase the earning capacity, efficiency and productive power of those employed therein." In order to understand the purpose of the Act, it is necessary to examine the report of the Royal Commission on Industrial Training and Technical Education, which was appointed by the Government in 1910, and spent approximately three years investigating and reporting on technical education as conducted in Europe and America. The recommendations contained in the report of the commission are the foundation on which the Act was built and the purpose of the Act is to provide the necessary federal assistance for carrying out these recommendations. Many changes have taken place since the commission did its work but the underlying principles and aims of technical or vocational education remain the same. In this paper we quote the recommendations and opinions of the commissioners and endeavour to point out the type of education which the Government desires to assist the provinces in promoting.

WHAT IS VOCATIONAL EDUCATION?

Vocational education is the term which has come into frequent use during recent years to indicate the form of education which purposely provides definite training and definite knowledge expected to be useful in enabling an individual to carry on his vocation in a way most advantageous to the community and satisfactory to himself. Vocational education has been classified for convenience of explanation under six headings, each one designating the group of vocations included under it, such as professional, industrial, agricultural, commercial, marine and housekeeping. "Industrial Training and Technical Education," is another way of designating the same thing as vocational education for all except part of the professional group, such as lawyers, doctors, clergymen, etc.

In some quarters a narrower interpretation has been given to "Industrial Training and Technical Education," and confined it to such instruction and training as have a bearing directly and chiefly on knowledge and ability with materials, tools, machines, manipulations, processes and products. However in all the countries visited by the commission systems and methods of "Industrial Training and Technical Education" provided by public authorities include also instruction in language, arithmetic, science, history, literature, usually physical culture and civics or good citizenship, and not infrequently singing.

The English Education Act of 1899 contains the legal definition of technical instruction for the purposes of that Act and for the application of public money under it.

"Technical Education shall mean instruction in the principles of science and art applicable to industries, and in the application of special branches of science and art to specific industries or employments. It shall not include teaching the practice of any trade or industry or employment."

In a communication furnished to the commission by Dr. W. L. Goodwin, Director of the School of Mining, at Kingston, Ontario he states:—

"Technical education may be defined as a course in the principles and applications of the sciences with the purpose of preparing men and women for professions and occupations requiring trained intelligence, skilful manipulation, and more than the usual store of information.

"Industrial training may be defined as the actual teaching of skilled labour, as formerly done by the apprenticeship system, but now in the more advanced countries, as in France, Germany, Switzerland, etc., carried on in schools where there is an opportunity of teaching more than the mere showing how a thing is done.

"But technical education and industrial training shade into one another. In fact a completely organized system of technical or industrial education provides for every grade of worker from the engineer who plans and directs to the skilled labourer who uses his hands and head rather than his head alone."

The examination of many explanations, besides those already quoted, and the current usage of the terms support Dr. Goodwin's statement that technical education and industrial training shade into one another. The most, and perhaps the best, that can be said is that, where the emphasis is laid upon the development of ability and skill in handling of materials, tools, machines and products, the training or education may fittingly be called industrial; and where the attention is given chiefly to science and calculations, and emphasis is laid upon the acquisition of knowledge of principles and their applications, the training or education may be called technical. No dividing line can be used to mark the one from the other. The experiences of an education which is mainly industrial are a means towards the accomplishment of the object of the education which is technical. Each, in some measure in its processes, includes part of the other. On the industrial side progress in knowledge of qualities and principles comes from doing; and on the technical side some progress towards industrial skill and ability results from the processes of acquiring knowledge of qualities, theories, principles and calculations.

Industrial training and technical education serve to supplement general education and give to it a finishing course of experience with special reference to the requirements of workers in industries, agriculture, housekeeping, commerce, transportation, mining and other occupations. They are means whereby the individual, the family, the community and the nation seek to develop the powers of the individuals for work, to prepare themselves to meet the conditions of working life, to alter these conditions in directions which seem desirable, and to conserve what is esteemed to be worth while out of the past in knowledge, customs, methods, institutions, standards and ideals.

Recent investigations by students of vocational education uphold the opinion of the commissioners as indicated by the following definition prepared by a class of graduates in Harvard University:—

*"Vocational education is preparation for work in industry, commerce, agriculture, the professions, or homemaking. 'Manual training' is not vocational education but is rather a phase of general experience useful for discovery or cultural purposes. 'Pre-vocational' work likewise is for discovery and try-out purposes rather than for actual vocational preparation; the continuation school for children fourteen to eighteen is at first for guidance and choice, and later for vocational education because the entering pupils have not yet seriously chosen a vocation nor found themselves in a satisfactory job. Vocational education is not in opposition to general education and should fortify and supplement preparation for civic, moral, family and recreational activities."

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*Educational Review, December, 1920.

David S. Hill, President of the State University of New Mexico, answers the question "What is Vocational Education?" as follows:—

*"The phases of education concerned chiefly with the practical applications of knowledge and skill in vocations (e.g. the occupations of the home; of the farmer; of the mechanic and factory worker; of the railroad, nautical, or automobile man; of the miner; of the tradesman, merchant, clerk, or banker; of the barber, cook, waiter, janitor; of the engineer, doctor, minister, lawyer, journalist, artist, etc.); these are types of vocational education. Stripping the term of restricted meanings, we understand vocational education to be a phase of education emphasizing specific preparation for and participation in occupations of social value. If one should claim that the training of thieves, adulterators, and social parasites is vocational education, then the criterion of 'social value' prevents the implication."

With such liberal definitions it is scarcely to be wondered at that public opinion differs regarding the nature and value of the work. Six examples of contemporary interpretations of the expression vocational education are given by Dr. Hill:—

"1. (Vocational education a fad.) Resentful of efforts at progressive change, or educational readjustment, a minority carelessly labels all aspects of the vocational movement as 'fads,' or 'sops to soothe labour and capital.'

"2. (The narrowly practical.) Vocational education is conceived as merely a special variety of manual training, or of agricultural, commercial, or trade training, etc.

"3. (Production vs. consumption.) Vocational education is conceived as essentially education for production, contrasted with liberal education conceived as education for consumption.

"4. (Specialized efficiency vs. adaptability.) Vocational education is for specialized efficiency, and liberal education is for providing adaptability to changing conditions.

"5. (Vocational education is for utility.) Utility, a word used in more than one sense, has been applied often to denote the end of vocational education. Sometimes the term is meant to imply something not as good as culture, knowledge, etc., or at least merely the bread-and-butter end.

"6. (Practical education compatible with ethical idealism.) It is possible to combine the acquisition of skill and of knowledge and of ethical idealism." This interpretation expresses concisely the form of education outlined in the report of the commission.

THE NEED FOR VOCATIONAL EDUCATION

Vocational education is older than any form of liberal education. Men have always followed occupations, requiring more or less skill and intelligence, by which they could secure a livelihood; and they have always trained the young for these occupations. The reason given for the enlargement of the field of the public school is that the changed conditions of industry, and of living in towns and cities, have withdrawn from children opportunities which were formerly theirs of participating in housekeeping and industrial work in such a way that they were prepared to go on with it after their school days were over. The school was really organized to supplement, by the arts of reading, writing, arithmetic and drawing, what the participation in the work and life of the home and occupations of the parents provided. The changing conceptions of education are due not wholly to the existence of new or different needs on the part of the people. Formerly the training of the home, of the occupation, of the community and its various institutions, was only supplemented by the education of the school. Now the school is absorbing the whole time of the child, while the changed conditions of industry and living have withdrawn the old opportunities. Where and while this is the case, the school becomes the only agency available to provide the new supplementary training for the all-round equipment of young people for occupations and citizenship. It must be made competent and adequate.

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* Introduction to Vocational Education—D. S. Hill.

As the powers and influence of individuals in matters of government—local, provincial and Dominion—become greater it becomes correspondingly necessary that each and all should have the kind and amount of education which will enable and cause them to live and work better than if they had not had it.

It therefore seemed advisable to the commissioners that a system of vocational education should be provided:—

(1) In order that the interest of boys and girls in their own training and instruction might be increased and an understanding of their relation to working and living might be clearer to themselves from twelve years of age onwards.

(2) In order that the period of authoritative supervision and of organized education to the extent of at least half a day per week, should be prolonged during adolescence, and that boys and girls should themselves desire those advantages until the age of seventeen or eighteen years.

(3) In order that all might become qualified to the full extent of their capacities to fill their places as individuals, as contributing earners, as citizens and as members of the race.

(4) In order that the nation as a whole might be more intelligent, capable and prosperous, and more united in its efforts to meet national problems and solve them wisely as they come.

THE FIELD FOR VOCATIONAL EDUCATION

The field for secondary vocational education is so large that in the past we have failed to see it. School statistics show that less than 65 per cent of the children who enter the public schools complete the work of the elementary grades. Less than 25 per cent enter the secondary grades and high schools, and only about 5 per cent complete the work. It is among the 95 per cent whose education has not fitted them to deal with the problems of life that the opportunities of vocational education are to be found. The field is entirely distinct from that of the high school and experience has proven that technical schools do not attract pupils in any number from the high schools.

*"In proceeding to subdivide the field it must be noted that a certain number of young people do not enter employment before they are 17 or 18 years. The individuals included in this group can attend school full time. For these, full-time day courses of instruction should be established. Other individuals must, of necessity, find employment soon after they reach the age of 14. These may be divided into two groups: (1) Those who can spend approximately half of their time in school and half of the time in employment, alternating between the school and occupation on a weekly, fortnightly, monthly or semi-annual basis; and (2) Those who, of necessity, must spend practically all of their time in employment, but by legal enactment or mutual arrangement with the employer, must spend four to eight hours per week in school. The first of these two is known as the "part-time" or "co-operative" system, and the second as the "continuation" system. Finally, there are those who, for various reasons, are in full-time employment. Instruction for these must be provided through evening classes. In this group are included all those who have reached more mature age and wish to improve their occupational efficiency. Any system of vocational education in Canada should therefore, provide: (1) full-time day classes; (2) part-time day classes; (3) continuation classes, and (4) evening classes."

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* The Problem of Technical Education, L. W. Gill, *Educational Review*, December, 1920.

In the opinion of the commission, it is important:—

(1) That the needs of the individuals for knowledge, ability and skill in their vocations or occupations should be considered in all the courses of study and methods of education which are provided at public expense;

(2) That from 12 years of age and onward the general and cultural education should include adequate vocational education;

(3) That while the ultimate or ideal end should be kept in mind the immediate effort should be directed to meet successfully the most pressing needs of existing conditions;

(4) That the effort should be directed to provide,—

(*a*) An adequate supply of competent instructors, as well informed and as well trained as practicable, to carry on the work which may be attempted;

(*b*) Courses of study and work in the several classes or institutions which would help the individual workers in connection with their occupations and thereby utilize the interest aroused to keep them in touch with educational effort and influence for development of the more purely mental qualities and moral powers;

(*c*) Such a system as can be most advantageously connected with the existing systems of education and existing institutions, classes and efforts.

The problem is not to subordinate one to another, but to provide for all. The special aim of vocational education should not be permitted to obscure or dominate the whole aim of education, which for the individual is the perfecting of the spirit and the development of all the powers of body and mind.

* It was clearly not intended that the Dominion Government should provide assistance for work already organized or established. Consequently the work to be promoted under the provisions of the Act has been limited to vocational education which has not been provided for except in a minor degree. The vocations for which education and training have been established are: (1) the professions (involving a degree); (2) teaching (elementary and high school); (3) agriculture (a federal grant has been given for this work). In accordance with the above, all work of college grade (courses leading to a degree), the training of nurses, the training of teachers for elementary and high schools, and agricultural education have been excluded from the benefits of the Act. The work of the elementary schools and the academic courses in high schools, including manual training, are excluded because they are not vocational, and because they have been long established and provided for. With the above noted classes of educational work eliminated, the nature of the work to be promoted and the ground to be covered are fairly well defined.

SUMMARY

Vocational education in order to benefit by the provisions of the Technical Education Act should be organized and maintained in accordance with the following principles:—

1. It should be under provincial control and regulation.

2. It should receive financial support from individuals, from local authorities and from provincial governments.

3. Provision should be made for active participation in its control, management and direction by individuals in the locality who would represent industries as employers and employees, women's occupations particularly housekeeping, business and organized education.

4. It should provide educational opportunities for those who have gone to work and also for those who are able to return and devote their time for some months or years, as the case may be, to a course or courses of instruction and training.

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* First Annual Report of Director of Technical Education, 1919-20.

5. It should make provision to ensure, as far as practicable, equality of opportunity for all preparing for industrial, commercial and housekeeping occupations and for workers in such occupations.

6. It should be carried on in cordial co-operation with existing systems of education, and in such a way as to have the advantage of the use of existing buildings, equipment and teaching staff so far as these may be suitable and available.

DEFINITIONS RELATING TO VOCATIONAL EDUCATION

At the annual convention of the National Society for the Promotion of Industrial Education, held in Boston in 1910, the executive committee of the society formulated the following brief definitions involving some important distinctions. These definitions apply to vocational education in the United States, but they indicate the difference between manual training and vocational education.

Vocational Education includes all forms of specialized education the controlling purposes of which are to fit for useful occupation.

Vocational Schools in a broad sense include all commercial, agricultural, industrial, household arts, and professional schools with the above purposes.

Industrial Education denotes the field of vocational education designed to meet the needs of the manual worker in the trades and industries, including the occupations of girls and women carried on in workshops.

Agricultural Education is that form of vocational education which fits for the occupations connected with the tillage of the soil, the care of domestic animals, forestry, and other useful work on the farm.

Household Arts Education is that form of vocational education which fits for occupations connected with the household.

Manual Training is the training of the hand, especially by means of the tools which are used in various industrial processes, employed as an agent in general education.

The Manual Training High School or the manual training school, is a school of secondary grade in which a greater or less amount of hand-work is included in the curriculum, and in which the greater part of the academic instruction is similar to that found in other high schools and college preparatory schools, neither the manual nor the academic instruction being especially planned to be of direct vocational service.

(It is evident that manual training schools as represented by the above definitions are not vocational schools previously defined.)

Industrial Schools include all special schools (*a*) that prepare for entrance into industrial employment and (*b*) schools that give supplementary instruction to those already engaged in such employment.

Trade Preparatory Schools (General Industrial Schools, Intermediate, Industrial Schools, Pre-apprenticeship Schools).—Trade preparatory schools are schools that offer training for boys and girls between 14 and 16 years of age in practical industrial processes, including such drawing, science and mathematics as will prepare them for entrance into the trades or industries as efficient beginners.

Trade Schools are schools that afford specialized practical training in manual trades with the object of preparing for immediate practical work at the trade as a wage earner. Such schools aim to take the place of apprenticeship in whole or in part.

Technical Schools are schools giving training in practical industrial processes, and which at the same time offer advanced instruction in the scientific and mathematical principles upon which these processes are based.

Technical High Schools are public schools of secondary grade having the distinct purpose of preparing pupils for industrial careers requiring scientific and technical knowledge beyond that needed by the skilled mechanic.

Continuation Schools—1. *Evening Continuation Schools*—Evening Continuation Schools are schools attended by those already engaged in useful employment which provide instruction directly related to such employment. Such instruction may consist of either practical work, or related subjects of study, or both.

2. *Part-Time Schools or Day Continuation Schools.*—Part-Time or Day Continuation Schools are schools for persons (commonly apprentices or other learners) engaged in useful employment, which give instruction supplementary to such employment during a portion of the working time of the pupils.

Co-operative Schools are schools conducted under an agreement between the school and an employing establishment, by which students entered in schools are given opportunities for practical work in the establishment for a portion of their time.

VOCATIONAL EDUCATION IN THE UNITED STATES

A Summary of the Development of Vocational Education during the Year 1920 as Indicated by the Fourth Annual Report of Federal Board for Vocational Education, U. S. A.

The reports of the states indicate a very general forward movement in all branches of vocational education. Educational and vocational surveys, interstate conferences, teacher training developments and the growth in part-time and evening schools are the outstanding features of the year's work.

Trade and Industrial Education

A generous increase in the number of schools and classes is reported from all sections of the country. New day schools have been established in twenty-two of the forty-eight states, thirty-six states have reported additions to their part-time schools and classes, and forty-four show an increase in the number of evening classes.

The Federal Board has spent much time in assisting the states to develop and perfect their teacher-training programmes. These programmes include short intensive courses for mechanics and the regular day residence courses in teacher-training institutions. Higher salaries for shop teachers and more provisions for training women teachers are needed. Thirty states are conducting satisfactory teacher-training work; in nine the work is fair, one provides only summer courses and eight have no training whatever.

Nineteen states have adopted compulsory part-time school legislation (similar to the Adolescent School Attendance Act of Ontario).

Interstate conferences have been organized and conducted by the Federal Board in each of the five administrative regions into which the country is divided. Intensive courses of instruction for teachers, covering a period of two weeks each, were held in each region.

Some of the special types of service rendered to the state boards were:—

1. Assistance in the promotion and development of training courses for shop instructors. It was found that such courses could be given in evening classes established at numerous points throughout the states rather than in one or two central institutions. The Federal Board provided instruction for the state representatives conducting these classes.

2. Another important service was the conducting of foremen's conferences and the development of effective programmes and courses of study for foremen-training. Special research has been carried on in this field and a large variety of courses developed. Conferences have been held in all parts of the country.

3. Representatives of the Federal Board conducted surveys of the machine-shop trades, coal mining, coke manufacturing, boiler making, potteries, textiles, and paper and pulp industry and assisted the state representatives in other surveys and trade analyses. The publication of Government bulletins containing this information is one of the greatest services the Federal Board has performed.

4. Valuable assistance has been rendered to state boards by developing methods of conducting simple and inexpensive local surveys for the purpose of establishing an educational programme to fit the needs of the community. Many vocational schools have failed because they attempted to provide training for which the community had no need. The surveys are planned to eliminate this possibility and provide useful information which will determine: (1) the field for training, (2) the training agencies and entrance requirements which should be set up, (3) the nature and classification of the instructional contents. (This work is similar to that being done for municipalities by the provincial director's staff in Ontario.)

The report states that there are three possible ways by which industrial training may be carried on:—

1. Under public control and the cost paid from public funds.
2. By the industry under its own control and at its own expense.
3. Under public control through co-operative agreements between the public schools and the co-operating industrial plants and the cost paid from public funds.

The choice of means will vary somewhat for the different types of vocational training whether for (*a*) trade preparation, (*b*) trade extension, (*c*) instructor training, or (*d*) foreman training.

SUMMARY OF CONDITIONS FOR PUBLIC AND PRIVATE CONTROL

Kind of Training	Under public control and at public expense	By the industry under its own control and at its own expense
Trade-preparatory instruction.	The State should control all instruction given prior to the age of effective entrance into industry. Above the age of effective entrance into industry training for high index trades and occupations can best be given under public control and at public expense.	Training for low index jobs can best be given by the industry at its own expense.
Trade-extension instruction.	1. Experience has shown that for ordinary skilled trades, such as carpentry, machine-shop and sheet-metal work, the public schools can handle the job better than the industry. 2. Promotional training for standard technical jobs should also be given under public control.	1. Low index jobs involving large, bulky and expensive equipment and a relatively small extension of training, short training period for horizontal trade-extension instruction can best be done by the industry itself. 2. Promotion training for specific technical jobs involving a knowledge of secret processes.
Foreman training, including minor executives.	The State or local community can most effectively conduct training to meet the needs of small plants located in one community and having limited financial resources.	1. Large industries having central administrative organizations, operating plants in various states or communities where a uniform policy is desirable and where the plant possesses adequate financial resources. 2. Large industrial concerns with ample resources and located in a single community.
Instructor training, including foreman instructors.	1. Training in teaching is generally recognized as a function of the State. 2. The State already possesses an organization and has experience in instructor training.	

Home Economics Education

"Marked progress has been made in the supervision of home economics education in the states, as it relates to increase in staff numbers, in their salaries and qualifications. At the present time forty-six of the states have women with training and experience to aid local communities in organizing and promoting home economics education, twenty-four states have full-time supervisors, twenty-two have part-time and four have assistant state supervisors."

There are twenty-nine full-time, twenty-one part time and five assistant state supervisors. The duties are threefold: (1) promotional, (2) assistance to teachers, (3) co-operation in the training of teachers.

Schools and classes in homemaking numbered 700 with an enrolment of 48,938 pupils, and 1,637 teachers. New training classes were opened in nineteen states and twenty-seven states have used the whole of the federal money available for salaries of teachers.

In addition to the teacher-training work carried on in the established institutions, seven states report forty-four centres offering special courses for the preparation of teachers for part-time and evening classes. These courses consist of approximately eighty lessons on the general principles and special methods of teaching. The regular courses in teacher-training institutions cover a period of four years.

The Federal Board has co-operated with various agencies in promoting education in home economics through: (1) conferences with other government agencies and state representatives, (2) participation in the program of other national organizations, such as the National Education Association and various home economics associations, (3) the appointment of national committees to study important problems such as (*a*) home project work, (*b*) analysis of homemaking as a vocation, (*c*) experience and training requisities for teachers, (*d*) teacher-training, (*e*) community surveys, (*f*) negro education, (*g*) related subjects.

Commercial Education

The outstanding need for commercial education is the co-ordination of the training offered by the different grades and types of public schools in such a way as to make a continuous program of training for business. State supervisors of business education are needed to promote this work.

A number of universities are providing teacher-training courses for commercial teachers but there is need for much greater development in this work.

The report recommends the establishment of commercial education on a co-operative or part-time basis. It is felt that actual experience under working conditions should comprise a considerable part of the student's training. Valuable assistance has been given to the states in organizing retail selling courses and in many places junior sale's clerks are required by employers to attend the continuation classes.

The Federal Board made a survey of commercial occupations open to boys and girls 14 to 17 years of age, inclusive, in order to find out just what the industrial and educational requirements are in these occupations. (See Bulletin No. 54, " Survey of Junior Commercial Occupations.")

By enlisting the active co-operation of the National Retail Dry Goods Association, the Chambers of Commerce and Boards of Trade, the Federal Board has developed a widespread interest in commercial education, and assisted the states in promoting the work along sound practical lines.

Agricultural Education

Normal progress has been made in the development of agricultural education. There is a growing appreciation of its value to the community and a better understanding of its problems. " The ultimate object—is to reach all boys and men on the land with a type of education which will be of immediate use in solving the daily problems of the farm."

The Federal Board representatives assisted the states by preparing job anaylses for agricultural education and co-operating with the state supervisors in every way possible, also by co-operating with the Federal Department of Agriculture in the preparation of bulletins and courses of study.

" Probably the most distinctive progress made in supervision has been made in the employment of men for improving teachers in service; some of the important results of this work and of the increased number of supervisors are:—

" 1. Courses of study have been planned more specifically to meet the needs of vocational pupils.

"2. A general plan of vocational work, whereby the people of the state may be interested in vocational agricultural education, has been provided in an increasing number of states.

"3. The teaching has been decidedly improved by giving individual help, extending over several days at a time, to the teachers in service.

"4. A state plan and program are taking form for the development of vocational agricultural education.

"5. Better standards for vocational work within the states are being set up."

A noteworthy feature of agricultural education which is definitely practical and applied is supervised practise in agriculture. Although stress is laid on educational attainment rather than financial gain, the total net income from this branch of the work in 1918-19 was $832,487.60. The total income from this work in some states exceeded the total amount spent for agricultural education.

The development of teacher-training work has been along the lines of more and better professional teacher-training courses and improved means of providing professional experience for the students, but the supply of qualified day teachers is still inadequate.

Note.—The Report of the Federal Board is divided into three sections:—

1. *The Vocational Education Division.*—Promotion of vocational education in the United States under the Vocational Education Act of February 23, 1917.
2. *The Rehabilitation Division.*—Vocational rehabilitation and return to civil employment of disabled soldiers, sailors and marines under the Rehabilitation Act of June 27, 1918.
3. *The Industrial Rehabilitation Division.*—Vocational rehabilitation and return to employment of persons disabled in industry or otherwise under the Industrial Rehabilitation Act of June 2, 1920.

The preceding is a summary of part I, section 1; part II is a list of the publications issued by the Federal Board; part III is a summary of progress by states; and part IV is a complete statistical report.

THE VOCATIONAL LIBRARY

An effort is being made by the Technical Education Branch of the Department of Labour of Canada to collect the best available textbooks and publications on vocational education. These books are reviewed by the department and information regarding their contents and value is available for the benefit of the provinces. It is hoped that before long the library of the department will contain a complete list of the textbooks and other references used in Canadian vocational schools together with the teachers' opinions regarding their value, also criticisms and suggestions which will be of use to other instructors and to those preparing courses of study.

Some Publications On Automobile Work

The following summaries of textbooks and index of recent publications and articles on automobile work are given as examples of the information being compiled by the department, regarding all branches of industrial, commercial and home economics education:—

AUTOMOTIVE REPAIR.—J. C. Wright, 1921. John Wiley & Sons, New York. 6 by 9—544 pages—2 parts. List price $3.50.

Fully and clearly illustrated by drawings, cuts and diagrams.

Part I (346 p.) consists of 118 practical automobile jobs or lessons covering all of the ordinary repair jobs in chassis work, engine work, electrical work, trouble shooting and body and radiator work. The necessary operations, materials, tools and parts required for each job are listed and full instructions given for performing each operation. References and review questions on each job complete the lesson assignments.

Part II (198 p.) explains in a clear untechnical way the principles of construction and operation.

A splendid text for day or evening motor mechanics classes.

Contents—Part II.—The Chassis and its Construction; Automotive Engines; Lubrication; Electricity applied to Automotive Equipment; Ignition; Magneto Ignition; Starting and Lighting; Fuels and Carburetors; Cooling Systems; Tire Casings and Tubes; Garage Planning and Operation; Care and Operation.

AUTOMOBILE REPAIRING MADE EASY.—Victor W. Page. 1920 Edition. Norman W. Henley Publ. Co., New York. 5 by 8—1060 pages—15 C. List price, $4.

A compilation of useful information and instructions regarding automobile construction and operation, repair shop equipment, tools, special appliances and repair jobs of all kinds. Illustrated by over 1,000 drawings and diagrams. A valuable reference book for schools or individuals.

Contents.—The Automobile Rėpair Shop; Small Tool Equipment for Repair Shops; Overhauling the Gasoline Engine; Cooling, Carburetion and Lubrication System Faults; Location and Remedy of Ignition Troubles; Motor Starting and Lighting Systems; Defects in Clutch and Gearbox; Faults in Chassis Components; The Rear Axle and Driving System; Wheels, Rims and Tires; Miscellaneous Repair Processes; Useful Information for Auto Repairmen; Hints and Kinks; Useful Tables for the Mechanic (Mathematical, Mechanical and Miscellaneous).

THE GASOLINE AUTOMOBILE.—G. W. Hobbs, B. G. Elliott, and E. L. Consoliver. 2nd Edition. 1915-1919. McGraw-Hill Book Company, New York. 6 by 9—474 pages—16 C. List price, $3.

Well ilustrated by 544 cuts, drawings and diagrams.

Explains the fundamental principles underlying the design, construction, and operation of the automobile and describes the different types of construction and systems of cooling, ignition, transmission, etc. Intended for drivers, repairmen, and salesmen of automobiles, but well suited for classroom use in secondary schools, day or evening.

Contents.—The Automobile; The Automobile Engine; Automobile Power Plants; Fuels and Carburetting Systems; Engine Lubrication and Cooling; Principles of Electricity and Magnetism; Battery Ignition Systems; Magnetos and Magneto Ignition; The Automobile Storage Battery; Starting and Lighting Systems; The Automobile Chassis and Running Gear; Clutches and Transmissions; Rear Axles and Differentials; Wheels, Rims and Tires; Automobile Troubles and Remedies; Operation and Care.

AUTOMOTIVE IGNITION SYSTEMS.—R. L. Consoliver and G. T. Mitchell. 1920. McGraw-Hill Book Company, New York. 6 by 9—262 pages. 10 C. List price, $2.50.

Well illustrated by 345 drawings, diagrams and cuts. No problems or mathematical calculations.

Prepared for mechanics and drivers who desire a working knowledge of the construction, installation, adjustments and repair of ignition systems.

Full descriptions of the theory, construction and operation of the different types of ignition systems with general instructions for adjusting and repairing.

A very good book for either secondary or college grade work.

Contents.—Principles of Electricity and Magnetism; Ignition Batteries; The Jump-Spark Ignition System; Modern Battery Ignition Systems; Battery Ignition Systems and Multiple Cylinder Engines; The Low-Tension Magneto; Modern High-Tension Magnetos; Armature Types; Modern High-Tension Magnetos—Inductor Types; Care and Repair of Ignition Apparatus; Ignition Troubles and Remedies; Index.

GAS ENGINE IGNITION.—E. B. Norris, R. K. Winning, and W. C. Weaver. 1916. McGraw-Hill Book Company, New York. 6 by 9—170 pages. 10. C. List price, $1.75.

Full descriptions of the construction and operation of the different types of ignition systems and the sources of electrical energy for these systems.

Well illustrated by 209 cuts, line drawings and diagrams. Contains no problems or mathematical calculations. Prepared for home study by auto mechanics in factories and repair shops who have to install, adjust, and repair ignition systems.

A good reference book or text for motor mechanics classes.

Contents.—Classification; (Hot Tube Systems); The Make-and-Break System; Jump-Spark Battery Systems; Vibrating Coils; Non-vibrating Coils; Batteries; Low-tension Magnetos—Armature Type; Oscillator Magnetos; Inductor Magnetos; Low-Tension for Jump-Spark Ignition; High Tension Magnetos; Direct-Current Generators; Miscellaneous Ignition Systems; Index.

AUTOMOTIVE STARTING, LIGHTING AND IGNITION.—R. C. Fryer. 1918. John Wiley & Sons, New York. 5 by 7½—210 pages. List price, $1.75.

The book is divided into three parts—(*a*) a series of notes intended to supplement classroom instruction or lectures. (*b*) 29 lesson assignments or series of questions. (*c*) 132 miscellaneous conventional wiring diagrams. It is intended to form the basis of a lecture course and to eliminate the necessity of written notes. The peculiar arrangement of the contents prevents the use of the book as a text for regular classes, but it should be a valuable aid to teachers.

Contents.—List of lecture room material requires:—

Classroom lecture notes on—Magnetism, electricity, induction coils, soldering, magneto classification and circuits, bench tests, generators, motors, batteries, etc.
Twenty-nine Lessons—Questions for discussion or individual written answers.
Diagrams—Conventional electric wiring diagrams for coils, generators, motors, ignition systems, lighting systems, starting systems, etc.
Index.

BULLETINS

COURSE OF STUDY IN AUTOMOBILE MAINTENANCE AND REPAIR. 1921. Knights of Columbus Educational Bureau. New Haven, Conn.

A bulletin prepared by the Educational Bureau of the Knights of Columbus "for the guidance and assistance of instructors and of students in the automobile maintenance and repair course, Knights of Columbus Evening Schools."

The bulletin is divided into six parts: (1) Outline of course of study, (2) Distribution of students, (3) Equipment in each unit, (4) Tools required, (5) 21 references books, (6) List of question sheets—1,600 review questions covering each unit of the course.

The course as outlined is divided into four units and requires a total period of 64 class hours or 16 hours per unit. The outline includes a series of lectures and shop exercises covering engines, carburetion, ignition, starting and lighting, clutches, transmission, steering gears, lubrication, chassis work, machine shop bench work and trouble shooting.

SUGGESTIONS AND OUTLINES FOR EVENING TRADE EXTENSION CLASSES. 1921. Dr. R. H. H. Blome, Director-State Board for the Control of Vocational Education. Department of Vocational Education, Phoenix, Arizona.

A bulletin prepared by J. T. Ryan and others " to stimulate the growth of evening trade extension work and to supply a basis on which an instructor can build a course."

Contains instructions for organizing and conducting evening courses in auto mechanics, machine shop practice, mining courses, wood-working courses, railroad mechanics and trade mathematics. An analysis of mining jobs and list of reference books are appended.

VOCATIONAL LIBRARY INDEX

Those books marked * are in the departmental library.

COURSES OF STUDY

MOTOR MECHANICS

(a) BOOKS

Automobile Engineering (A general reference Book.) — American Technical Society, Chicago, 6 volumes. 1921.

*Automotive Repair — J. C. Wright. John Wiley & Sons. 544 p. 1921.

*Automobile Repairing Made Easy — V. W. Page. Norman W. Henley Publ. Company, New York. 1060 p. 1920 Edition.

Ford Car Construction and Repair — J. R. Bayston. American Technical Society, Chicago. 148 p. 1921.

Modern Methods of Ford Repairing. — J. H. Pile. U. P. C. Book Co., Inc., 243-West 39th St., New York. 251 p. 1920.

*The Gasoline Automobile. — Hobbs, Elliott and Colsoliver. McGraw-Hill Book Co. 474 p. 1919. Second Edition.

Gasoline Automobiles. — J. A. Moyer. McGraw-Hill Co. 261 p. 1921.

*Automotive Ignition Systems. — E. L. Consoliver and G. L. Mitchell. McGraw-Hill Co. 269 p. 1920.

*Gas Engine Ignition. — Morris, Winning and Weaver. McGraw-Hill Co. 170 p. 1916.

*Automotive Starting, Lighting and Ignition. — R. C. Fryer. John Wiley & Sons. 210 p. 1918.

Coil Ignition for Motor Cars. — C. Sylvester. Isaac Pitman & Sons. 228 p. 1921.

Simplified Guide to Correct Automobile Wiring; Internal Diagram. — G. Rondanes. Automobile Engineering Company, Chicago. 149 p. 1921.

Auto Electricians Guide for Starting, Lighting and Ignition Systems. — Michigan State Auto School, Detroit. 961 p. 1921.

Automobile Electrical Systems. — D. P. Morton and D. S. Hatch. U. P. C. Book Co., Inc., New York. 591 p. 1921.

Electrical Equipment for the Motor Car. — D. P. Morton and D. S. Hatch. U. P. C. Book Co., Inc., New York. 605 p. 1921.

Gasoline and Other Motor Fuels. — C. Ellis & J. V. Meigs. D. Van Nostrand Company. 709 p. 1921.

Questions and Answers relating to Modern Automobile Design, Construction, Driving and Repair. — V. W. Page. Norman W. Henley Publ. Co., New York. 701 p. Revised and Enlarged. 1921.

Automobile Handbook. — L. E. Brookes. F. J. Drake & Company, Chicago. 706 p. 1921.

Branham Automobile Reference Book. — Ben. J. P. Branham Company. Auto Division, Chicago. 320 p. 1920.

The Metal Trades. (A survey of the metal trades, including automobile work.) — R. R. Lutz. Cleveland Foundation Survey, Committee, 1916.

BULLETINS

Course of Study in Automobile Maintenance and Repair. — Knights of Columbus Educational Bureau, New Haven, Conn. 1921.

Suggestions and Outlines for Evening Trade Extension Classes. — State Board for Control of Vocational Education, Phoenix, Arizona, 1921.

ARTICLES FROM PERIODICALS

Industrial Arts Magazine

Establishing an automotive course. — E. V. Glenn. 461. Dec. 1921.

Automotive Industries

New Block-cast six-cylinder engine. — J. E. Schipper. 45:310-11. Aug. 18, 1921.

New Four-cylinder engine to be a stock product. — J. E. Schipper. 44:694-5. March 31, 1921.

New Four-cylinder engine, Turmo, of conventional design. — J. E. Schipper. 44:800-2. April 14, 1921.

Revolving Air-cooled Engine. — 44:219-20. Feb. 3, 1921.

Rigid Construction and Clean appearance features of new engine designed by F. S. Spring and H. L. Elfes. — J. E. Schipper. 44:493-4. March 3, 1921.

New Method of Cooling Automotive Engines. — P. M. Heldt. 44:1103-5. May 26, 1921.

New Test for motor fuels. — 44:741. April 7, 1921.

Why our motor fuel supply must be conserved. — H. Chase. 45:251-4. Aug. 11, 1921.

Elements of automobile fuel economy. — W. S. James. 44:1201-5. June 9, 1921.

Routine Factory and final inspection of Packard engines. — J. E. Schipper. 44:1162-3. June 2, 1921.

1921 specifications of stock engines for passenger cars, trucks and tractors; tabulation. — 44:388-9. Feb. 17, 1921.

Industry's present opportunity for public service. — C. Jennings. 44:1411-12. June 30, 1921.

Improved service obtained by training service men in automobile industry. — 44:562-4. Mar. 10, 1921.

Canada has 403,111 cars and trucks in use. — C. C. Porter. 44:399-402. Feb. 17, 1921.

Growth of motor vehicle production capacity. — 44:316-19. Feb. 17, 1921.

Sales School develops permanent business builders. — N. G. Shidle. 43:1174-5. Dec. 9, 1920.

What is the average life of cars and trucks. — P. N. Heldt. 44:589-91. Mar. 17, 1921.

Better body construction needed. — 43:1285. Dec. 23, 1920.

Causes of roadside breakdowns. — 44:771. April 7, 1921.

Devices for controlling headlight glare. — 44:1199-1200. June 9, 1921.

Recent motor vehicle lighting laws in the chief Canadian provinces. — 44:402. Feb. 17, 1921.

Atwater-Kent starting and lighting on Packard six. — J. E. Schipper. 43:1216-17. Dec. 16, 1921.

Ross steering gear for passenger cars. — 45:160. July 28, 1921.

Reagan automotive steam engine. — 45:326. Aug. 18, 1921.

Society of Automotive Engineers Journal

New Principle of engine suspension. — S. Slocum. 8:56-6. January, 1921.

Relative merits of large slow-speed and small high-speed engines. — W. S. James. J.8:561-2. June, 1921.

Underlying principles of electrical ignition. — B. F. Bailey. J.8:570-5. June, 1921.

Dilution of crankcase oil. — F. Parish. J.8:231-4. March, 1921.

Need of researches on automobile parts. — T. Magruder. J.8:255-6. March, 1921.

Automobile Body Construction. — P. E. Stone. J.8:404-5. Discussion 406-9. May, 1921.

Style in automobile bodies. — J. Mercer. J.8:123-6. Feb., 1921. Discussion—8:434-6. May, 1921.

Developments in transmission. — S. Bramley-Moore. J.8:350-64. April, 1921.

Sibley Journal of Engineering

Studies of the automobile; the past and the problem of the present time. — G. B. Upton. J.35:58-60. April, 1921.

The Automobile Engineer

Drayton, two-stroke engine. — 11:14-15. January, 1921.

Character of various fuels for internal combustion engines. — H. T. Tizard & D. R. Pye. 11:55-9, 98-101, 134-7 F. April, 1921.

Suggested program for automobile research. — W. Watson. 11:255-30. Discussion 11:257-9. July, 1921.

B. M. Starting device. — 11:168. May, 1921.

Holding the road; a discussion of the fundamental principles affecting the interaction of wheels, springs and roads. — J. L. Napier. 11:266-72. Aug. 1921.

Manufacturing methods on a light car. — 11:206-11. June, 1921.

National Petroleum News

Loss of around 25 per cent in motor fuel through poor carburetion. — N. 12:27-8. Dec. 22, 1920.

Sheet Metal Worker

Directions on repairing automobile radiators. — H. Terpening. 11:253-6 plus, 286-7, 315-17, 342-3, 368-9, 397-8, 430-1, O.-1-N. 12, 26. Dec. 10, 24. 1920.

Useful pointers for radiator repair men. — H. Terpening. 12:464. Aug. 5, 1921.

Scientific American

Balky motor; some of the things to look for when the automobile refuses to do its duty. — W. Page. 124:227. Mar. 19, 1921.

History of the American motor car industry told graphically and in figures. — 124:1. Jan. 1, 1921.

Where is that rattle? The commoner automobile noises, their causes and how to locate them. — W. Page. 124-8. Jan. 1, 1921.

Cleaning automobile mechanism by spraying. — 124-43, January 15, 1921.

Towing the wrecked car. — 125-101 Aug. 6, 1921.

American Machinist

Carbon and other motor troubles. — I. B. Rich. 55:291. Aug. 25, 1921.

Sheet metal work for automobiles. — F. H. Colvin. 53:1165-8. Dec. 23, 1920.

Gears for motor transmissions. — F. H. Colvin. 54:606-9. April 7, 1921.

Stanley steam car power plant. — F. H. Colvin. 54:955-8. June 2, 1921.

Journal of Electricity and Western Industry

Problem course in electricity, automobile generators and batteries. — H. H. Bliss. 46:572-4. June 1, 1921.

Engineering

Defects in motor vehicles and their remedy. — F. Strickland. 110:769. Dec. 17, 1920.

Electrician

Latest Bleriot Phi starting and lighting equipment. — 86:657-9. May 27, 1921.

THE
DEPARTMENT OF LABOUR, CANADA
Hon. JAMES MURDOCK, Minister of Labour

Vocational Education

NUMBER 2 MAY, 1922

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DEPARTMENT OF LABOUR, CANADA
Hon. JAMES MURDOCK, Minister of Labour

VOCATIONAL EDUCATION

Number 2 May, 1922

ESSENTIALS IN A SYSTEM OF VOCATIONAL EDUCATION

*[1]Whether it be for physical, manual, or mental development, training is definitely organized instruction in the things pertinent to the purpose for which it is undertaken. It implies as a matter of course competent instructors. It implies further, organization of the work so that the right kind of material is presented at the right time, and only in such quantity as the person can readily assimilate. The physical and mental powers of the person must be developed gradually to meet the requirements of the training program.

Consequently training involves three things:—

I. A purpose.
II. A teacher or instructor.
III. An outline of informational content and of skills.

The Purpose and Aims of Vocational Education

In vocational education the purpose for which training is undertaken may be called the job objective. This objective must be set up in order that training may efficiently lead to some definite goal.

The aims of vocational education have been arranged in the following order of importance for the guidance of those who plan the courses of study and kinds of work to be done:—*[2]

I. The preservation of health and the vigour of life.
II. The formation of good habits.
III. The development of the sense of responsibility and duty.
IV. The preparation of the body, mind and spirit for following some useful occupation.
V. The cultivation of the mental powers, the acquisition of knowledge and the development of the scientific spirit with direct reference to the occupation.
VI. The promotion of good-will and desire and ability to co-operate with others.
VII. The maintenance of standards and ideals.
VIII. As all inclusive and ultimate, the perfecting of the human spirit, the improvement of the quality of life itself and the betterment of the conditions of labour, leisure and living.

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*[1] "Services of advisement and co-operation" Bull. No. 70, Series No. 3, of the Federal Board for Vocational Education.

*[2] Report of the Royal Commission on Industrial Training and Technical Education, Part I, page 19.

The duty of vocational education is, first, to educate industry itself by securing a change of attitude towards its method of regarding the juvenile worker, and, secondly, to assist industry in the selection and training of its entrants. No attempts should be made in any vocational school to definitely provide any training which is adequately supplied by industry. In general, the definite objective of the vocational school should be to supplement the training which the individual will receive (or is receiving) in his (or her) occupation. It is not merely sufficient to turn out well equipped and efficient workers in every class of industry most fitted to their natural bents, but to seek to make each worker discover the wholesomeness and happiness in the performance of every task, interpreting his experience in terms of pleasurable duty, which will bring not only personal gain, but will add to the interests of the community and nation.

The best results in vocational education are to be obtained through:—

I. The discipline which comes from interest in work and from co-operation with others in educational classes to at least seventeen years of age.
II. The conservation of the love of work and of satisfaction in doing it well.
III. The acquisition of technical scientific knowledge, and the development of the scientific spirit.
IV. The preservation and strengthening of a spirit of willingness to accept and fill one's place in organized society which implies relative positions and relative degrees of authority.

The acquisition of mere trade or craft skill is only one of the means which in education can be made helpful for reaching the larger ends. General education also promotes these ends; and there need be no essential difference between the aims of vocational education and those of general education. The main distinction is in the narrower field and more direct methods by which vocational education seeks to provide qualification for the working or earning part of life's activity.

The Teacher

The teacher should be fully qualified by knowledge of the subject to be taught, and in the case of a shop instructor his knowledge should have been gained by experience in the work. He should further have ability to impart this knowledge systematically and intelligently.

The greatest need of vocational education in Canada is for competent teachers. Adequate training facilities do not exist for training teachers specially for this work and special training is necessary. Trained teachers are available for teaching the academic or cultural subjects, but they lack the industrial experience and knowledge which will enable them to link up the work of the classroom with that of the shop or industry. Competent mechanics and trained workers are available for teaching the practical subjects or shop work, but very few possess the training and experience which enables them to impart their knowledge in an efficient manner.

An adequate supply of competent teachers is essential to the success of any system of vocational education. Special teacher training colleges, summer schools for teachers, and itinerant or visiting instructors for teachers in evening classes, must be provided if the work is to continue and the aims of vocational education are to be realized.

Organization of the Work

The outline of informational content and of skills should include such items as are agreed upon by all parties concerned as being necessary to equip the individual so that he will be able to give satisfaction in the job. In the outline, items should be arranged in progressive steps from the easiest to the most difficult.

A comprehensive system of vocational education is divided into three stages:—

I. The beginning stage.
II. The finding stage.
III. The finishing stage.

The first stage gives elementary general education; the second continues the general education and helps a student to find a vocation suited to his taste and ability; the third fits him more specifically for that vocation.

Although the means and methods of vocational education are determined by the requirements of particular callings or groups of related callings, it is evident that the directness with which any given educational subject bears on a vocation may vary indefinitely. The study of science, mathematics or art may or may not be vocational according to its purposes, emphasis, and the types of students concerned. Some studies may be vocational, not in the sense of conferring any immediate vocational power, but in giving certain broad foundations for development. Thus, manual exercises, such as shop and laboratory practice, may be vocational, though having no specific end in view. No absolute line of demarcation can be drawn here, but the following divisions of informational content in vocational education are usually made:—

I. *Academic Subjects.*—Around any vocation, or large or small group of related vocations, may be assembled a certain amount of history, geography, economics, etc., which can be studied for the sake of "industrial intelligence," breadth of view, vocational ideas, etc.

II. *Related Subjects.*—Back of almost all groups of related vocations are certain phases of mathematics, science, drawing and art and manual practice in which training, instruction, and laboratory practice may be given primarily with a view to their ultimate application to a vocation.

III. *Shop Subjects or Practical Work.*—Under this head is comprised manipulative practice with the materials and tools such as are found in the industrial-arts processes themselves. Shop work, house work, field work, the construction of usable and saleable products, are all more or less involved. In this division the manipulative practice becomes the chief means of learning, whereas in the former division it is the secondary means.

*Manual skill can be developed only by repeated and varied experiences. As industry provides the quantity or mass of experience, the school should not attempt to repeat experiences with the object of developing speed and manipulative skill except under exceptional conditions. Even if this were necessary, it would involve the expenditure of much more money than is available for this work. Apart from this, the pupils' time must be spent in doing the more essential things. It does not follow, however, that the pupil should not get any practical training. Manual exercises should be given to illustrate the principles and methods underlying occupational work, and to assist in establishing these principles firmly in the mind of the pupil. Each exercise should have a definite objective, and should, if possible, involve some kind of planning on the part of the pupil. In doing these exercises a certain amount of manual skill will be developed but this will be incidental. Herein is the great difference between the practical training of the vocational school and the manual training of the elementary and high school. The object of the latter is to develop manipulative skill of a general character, and also the faculty of co-ordinating the action of the hand with the eye. In a democratic community, such as ours, everybody has to do more or less for themselves, if not for others. Manual training is helpful in this direction. But there is no well defined objective involved as in industrial training.

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*The Problem of Technical Education by L. W. Gill—Educational Review, December, 1920.

The practical training in the vocational school should be centred largely around the interest of the pupil. It should be of such a character that it will involve constructive thinking on the part of the pupil. Guided by a competent instructor, the interest of the pupil under these conditions will not only be maintained but it will grow, and his mental development will proceed hand in hand with the growth of his understanding of the principles on which his chosen vocation is based. If the pupil has not chosen a vocation, constructive exercises along the line of his chief interest will give the best results in the direction of mental development.

CORRESPONDENCE INSTRUCTION IN NOVA SCOTIA

By A. T. Jewitt, Superintendent

The addition of a Correspondence Study Division to the activities of the Technical Education Branch of the Department of Education for Nova Scotia has been fully justified by an enrolment to date—March 15—of 160 students from every county in the province, taking 175 courses, and it should be noted that students are not encouraged to take more than one course at a time.

An attempt to reach those who were desirous of continuing their education by means of correspondence courses was made in 1916 but discontinued owing to the necessity of providing for the retraining of men disabled in the late war and it was not found possible to commence the work of reorganization of these classes until March, 1921, when a superintendent was appointed.

At this time very little reliable data was available as to the probable character and size of the demand for instruction and it was decided to make an entirely fresh start.

The first thing to do was to endeavour to find out if there was any demand for correspondence study in the province, and the statistics issued by the Department of Soldiers' Civil Re-establishment were of considerable use, as by means of them it was possible to get into touch with many of the returned soldiers who had been retrained in Nova Scotia. Letters were sent to these men informing them of the intention to open classes for instruction by correspondence and enclosing a card on which they were asked to state the subject in which they were interested and return it to the college. Two hundred and thirty-five cards of inquiry were returned and upward of one hundred letters received asking for further information. This was considered sufficient evidence of a demand for instruction, especially as these inquiries came from one class only, and that a small part of the people from whom students might be expected.

The diversity of subjects which interested the men was great, ranging from barbering to engineering, and there was evidence of the erroneous idea that trades or professions may be learned without practical experience. However, the purpose of the cards was attained and in addition it was seen that it would be a good policy to offer a wide range of study courses with the least possible delay.

This was only possible by the co-operation of other institutions; and it is through the courtesy of the Provincial Institute of Technology and Art, Calgary, Alberta; of the University of Wisconsin; the State Board of Education for Massachusetts, and the Women's Institute of America, that this division has been able to offer courses immediately which would have taken months to prepare. The magnanimity of the permission to use the courses of these institutions will be better appreciated when it is remembered that their preparation entailed the expenditure of large amounts of money and that this division is charged merely the cost of printing. No conditions have been attached to the permission to use the courses, other than an acknowledgment of the source, and the executives of these institutions have shown the utmost willingness to give this division the benefit of their experience in this kind of education.

Courses in fifty-five different subjects have been offered which are arranged in six groups: (*a*) Commercial courses including such subjects as commercial correspondence, elementary English, business English, business arithmetic, book-keeping, accountancy, salesmanship, advertising, showcard writing, stenography; (*b*) mathematics, with courses in applied arithmetic for mechanics, and algebra, geometry and trigonometry suitable not only as a preparation for industrial courses but for college entrance examinations; (*c*) industrial courses, offering amongst others, steam engineering, gas and oil engines, gasoline automobiles, heating and lighting for janitors, plumbing, heating, practical electricity, electrical wiring, and surveying; (*d*) drawing courses, with courses in mechanical drawing, machine design, architectural drawing, and plan reading and estimating for builders; (*e*) general courses, which cover courses in French, Latin and English, specially arranged to meet the requirements of the matriculation examinations held in the province; (*f*) homemaking courses for women in dressmaking, millinery, cookery, household management, interior and exterior home decoration. By special arrangement with the instructress, country students taking millinery and dressmaking can have the advantage of buying in Halifax.

It is hoped that the college will eventually issue its own courses. A beginning has already been made in this direction, and with the highly trained and experienced staff of instructors now engaged it should not be long before this division will be in a position to reciprocate the courtesy and help received from others and extend assistance to those provinces which may in the future include teaching by correspondence in their system of education.

The courses are confined strictly to the people of Nova Scotia, but applications for courses have been received from every part of Canada with the exception of British Columbia, the applicants being referred to the directors of technical education of the several provinces.

The following list shows the percentage of enrolment in each group:—

Commercial courses	36
Industrial courses	21
Drawing courses	11
Mathematical courses	16
General courses	9
Homemaking courses	7

Mathematics and drawing, being what may be called "key subjects" for a thorough industrial training, the percentage enrolment in these two groups should be added to that of the industrial group making a total percentage of 48. This showing of 48 per cent of the students in the industrial group is considered very satisfactory, indicating that a large number of mechanics are desirous of obtaining a good theoretical knowledge of their work and are not particularly desirous of changing to clerical work. The students taking commercial studies include a number of women, and it speaks well for the business future of this province that book-keeping and accountancy are favourite subjects with men who are employed in business establishments.

The method of handling the work is to send to the student the first two of a series of lessons upon acceptance of the application and receipt of the fee. After carefully studying the work of the lesson, the student writes out the answers to the questions forming part of the lesson or assignment, and sends them to the college for correction, receiving the next lesson by return mail. The answers are carefully marked with such comments as may be considered necessary and great care is taken to prevent the marking approaching a stereotyped form. The students are encouraged to ask questions and made to feel that the instructors take a personal interest in their progress. As a rule a student who takes an industrial course must be regularly employed in the line of work which he wishes to study and with this exception, the reason for which is obvious, there are no entrance requirements.

Certicates are given to all students satisfactorily completing a course of study but they may be required to take a written examination under supervision.

An interesting development of the correspondence courses has been the formation of additional evening classes in Halifax where the demand for correspondence courses in showcard writing and marine engineering indicated that there was a sufficient number of students to warrant such action and it is expected that similar action will be taken in other parts of the province next session. It is very probable, too, that evening school students may take correspondence courses when their classes close for the session. This co-ordination of the work of the evening school and correspondence divisions will be encouraged with the object of providing continuous study for the more earnest student.

The chief factor on which the success of any system of teaching depends is, of course, the teacher and this division has been very fortunate in having the co-operation of the Faculty of the Technical College as instructors; very little difficulty has been experienced in interesting men and women of outstanding ability and wide experience in the work of the division to such an extent as to secure their services as instructors, and in some cases, the fee cannot possibly be any incentive to them to take part in the work.

Teaching by correspondence is a method of bringing the instructor to a student who is unable to attend a class. It has demonstrated its utility and won place and recognition in our educational system. But it is not a panacea for every educational shortcoming. It will not cure by suggestion. It cannot take the place of experience and practice. It is not a short and easy road to success.

What can correspondence teaching do for a student? It can do anything that a good class can, except give practical experience in certain subjects; perhaps more, because the hours of study are not fixed and full advantage may be taken of spare time, also if there is the proper sympathy and co-operation between student and instructor the teaching partakes of the character of private tuition. But it needs self-denial, energy, perseverance, and courage, on the part of the student; any one who commences a course under the impression that it is easier than attending a class is certain of failure.

The mechanic can be prepared for his trade examinations, the clerk given a scientific knowledge of salesmanship, book-keeping, accountancy, and office organization, the student whose ambition is to obtain a university training can keep up his studies until able to enter a university and those who, through adverse circumstances, or their own neglect, have not had a good general education may get one by this method without their deficiencies becoming known to their companions or neighbours. Many a man, who by sheer native ability has risen to a fairly responsible position has obtained a knowledge of the principles underlying his occupation by taking a correspondence course when it would have required greater courage than most possess to attend a class. The man or woman who wishes to keep in touch with modern developments and to focus desultory reading will find correspondence courses of great value.

The question has been raised as to whether or not correspondence students should receive credit for the work done in their courses at our universities. At present this cannot be done, but the question seems a reasonable one and it is expected that in time a plan will be worked out by which a student who works through a course whose content has received the approval of a university, and passes a satisfactory examination in such a course, may be granted credit which will lessen the period of residence usually required.

Some plan of this kind would be a strong incentive to the ambitious and enable many to obtain the advantages of a university training who are unable to afford four or more years to obtain it.

Teaching by correspondence has passed the probation stage and, provided no extravagant claims are made for it which can only result in disappointment to the student and discredit to the method, it will remain as a valuable means of instruction and, by arousing an interest in the study of trades and vocations engender a certain pride and interest in work productive of social contentment and an ambition to advance by good work and ability.

THE VOCATIONAL LIBRARY

SOME PUBLICATIONS ON MATHEMATICS

NOTE.—Teachers who have used any of the following text-books are requested to send criticisms or comments to the Director of Technical Education, Department of Labour, Ottawa. Prices indicated are not taken from the latest price lists.

ARITHMETIC FOR CARPENTERS AND BUILDERS.—R Burdette Dale. 1915. John Wiley & Sons (Technical Series), New York. 5 by 7, 231 pages, 16 C. List price, $1.75.

Contains 246 problems and 109 sketches and diagrams. Written for carpenters and apprentices with a public school education to qualify them for estimating the cost of buildings. Contains two chapters on the explanation and use of the square. Problems are designed to impart a better understanding of the fundamentals of carpentry and develop the judgment of the students. All rules, methods and terms are clearly explained and accompanied by illustrative problems worked out in detail and followed by an explanation. A suitable text for aprentice, continuation and evening classes for carpenters and woodworking trades.

Contents (abbreviated).—Units of length, fractions, money, banking, wages, estimating, decimals, use of rules, pulleys, belts, formulas, short methods, percentage, analysis and solution of problems, profits, interest, ratio and proportion, levers, tables of measurements, concrete mixtures, powers, roots, triangles, lumber terms and dimensions, flooring, shingles, building, geometry, geometric constructions, area of surfaces and volumes of solids, use of carpenter's square (different scales, etc.), use of square in framing, roof pitches, etc.

WOODWORK EXERCISES TREATED MATHEMATICALLY.—F. E. Drury. 1912 G. Bell & Sons, London, Eng. 5 by 7½, 215 pages, 21 C. Price, 2/6.

Well illustrated by 138 sketches and diagrams. Contains 250 concrete problems with answers; also 30 simple woodworking exercises, affording practical applications of mathematical principles. Designed " to show how practical mathematics may be linked up with woodwork ". Includes a complete course in mensuration and two important chapters on Graphs and Percentage Errors in Measurement. Nearly every chapter includes a set of practical questions, such as " What kind of wood appears to you to be suitable for the construction of a large try square?" A good text for manual training woodworking classes in which the shopwork and mathematics are closely correlated.

Contents (abbreviated).—Areas and Volumes of: Triangles, circles, prisms, hexagons, octagons, sectors, pyramids and prismoids, cones, spheres, rings and curved surfaces; percentage waste; graphs; area graphs; percentage errors in measurement; index. Answers to examples.

PRACTICAL TRADE MATHEMATICS.—James A. Moyer & Chas. H. Sampson. 1920. J. Wiley & Sons, New York. 5 by 7. 172 pages, 12 C. List price, $1.50.

There are 340 problems with over 150 diagrams and illustrations, and all problems have a direct bearing on the work of the different trades. Brief explanations of the mathematical operations are followed by the solution of illustrative problems showing clearly the methods to be employed. Assigned problems are divided into two groups, the first for machinists, draftsmen, plumbers, carpenters, steam engineers, etc., and the second for electrical trades only.

The authors emphasize the importance of checking all calculations and give methods. The methods of solving all formulas are clearly shown in illustrative problems but no attempt is made to show how these formulas are derived. Should be suitable for evening classes (especially electricians), and for senior apprentice classes.

Contents (abbreviated).—The use of numbers, common fractions, decimal fractions, percentage, ratio and proportion, powers of numbers, roots of numbers, industrial appliances and power, applied geometry, applied solid geometry, curves and tables, review.

MACHINE SHOP ARITHMETIC.—F. H. Colvin and W. L. Cheney. 1917. Norman W. Henley, Publ. Co. 2 West 45th St., New York. 4 by 6—144 pages—20 C. List price, 75 cents.

Contains no problems for classroom or homework, and is not illustrated. Explains clearly in simple language the principles and methods of performing the various mathematical operations used by machinists. Works out the calculations for various machine shop operations, such as selecting change gears for screw cutting, calculating speed of milling cutters, etc. The book should serve as a handy reference for machinist apprentices, machinists and instructors in machine shop practice.

Contents (abbreviated).—Decimals, square root, cube root, formulas, mensuration, rules for selecting change gears for screw cutting, V threads, drilling for taps, bolts and nuts, speed of pulleys and gears, speed of milling cutters, drills and work, table of cutting speeds, speeds of drills and taps, with table, grindstones and wheels, principles of square root and cube root, foundation principles, principles of screw cutting, handy ways of calculating, metric system with tables, standards for pipe and threads, tables of circumferences and areas of circles.

MATHEMATICS FOR MACHINISTS.—R. W. Burnham. 1915. John Wiley & Sons. Inc., New York. 5 by 7—229 pages, 18 C. List price, $1.75.

Contains 615 concrete, interesting problems relating principally to machine shop practice and 175 diagrams and illustrations. Specially adapted for use in evening classes for machinists and part-time or continuation classes for apprentices. Discourages mechanical use of formulas and shows steps in calculation in logical order. Defines terms and explains mathematical and mechanical operations and works out illustrative problems.

Contents (abbreviated).—Fractions, decimals, percentage, applications, blue prints, measurements and instruments, areas, angles, constructions, powers, roots, lathework, threads, thread cutting, simple machines, work, power ratio, gears, milling machine, volume and weight, shop trigonometry, business organizations—labour accounting, cost of manufacture, wages, etc.

Appendix—formulas and tables.

PRACTICAL SHOP MECHANICS AND MATHEMATICS.—James F. Johnson. 1915. John Wiley (Tech'l Series), New York. 5 by 7½—124 pages. 8 C. List price, $1.40.

Contains 228 concrete problems with 81 sketches and diagrams. Deals with "the simpler branches of applied mechanics and the mathematics directly related to them, that pertain to actual shop conditions". Explains briefly the processes of manufacture and properties of metals, timber and concrete. Gives shop methods of calculating areas and volumes, pulley and gear speeds, forces in levers, pulley blocks, jack screws, tension compression and shearing, angle measurements, rules and formulas illustrated by practical examples worked out in detail. A good text for apprentice, continuation and evening classes. Specially adapted to metal working trades.

Contents (abbreviated).—Materials, measures and weights, measuring instruments, pulleys and belting, tooth gearing, forces in levers, blocks, etc., horsepower, graphical representation of forces, triangle and parallelogram of forces, equilibrium, centre of gravity, stress and strain, tension, shearing, angle measurements and functions with practical application. Tables.

PRACTICAL APPLIED MATHEMATICS.—J. W. L. Hale. 1915. McGraw-Hill Book Company Inc. New York. 4½ by 7—206 pages. 20 C. List price, $1.40.

Contains 670 practical concrete problems and 185 diagrams, sketches and curves. Specially adapted for use in railway shop apprentice schools and trade apprentice classes. A supplement to " Practical Mechanics and Allied Subjects " by same author. Each chapter may be treated as a unit course or the book followed as a complete course. Explanations are clear and simple and followed by illustrative exercises.

Contents (abbreviated).—Fundamental operations, fractions, decimals, micrometer, percentage, ratio and proportion, measurement of angles, mensuration of four sided figures, mensuration of triangles, circle, simple solids, use of rules and formulas, simple questions, binomial, tables and curves, cube root, mensuration of prisms, pyramids and cones, miscellaneous solids, rules for polygons, rules for length, area and volume, metric system, tables.

PRINTERS' ARITHMETIC.—Chas. L. Woodfield. 1917. C. L. Woodfield, 536 S. Clark St., Chicago, Ill. 4½ by 7—136 pages—3 parts. Price, 64 cents.

Contains 46 lessons composed mostly of exercises or problems all of which have a direct bearing on the work of apprentices. Not illustrated. A course designed for apprentice printers in the Chicago Typothetae School of Printing (a part-time trade school maintained by printing firms in Chicago for training apprentices).

A good text book for junior apprentice printers' classes. Contains useful information and interesting problems for prevocational or junior industrial classes.

Contents (abbreviated).—Part 1.—A brief review of the fundamental questions of arithmetic with names of terms and rules for operations. Addition, subtraction, multiplication and division of numbers, fractions, and decimals. Six lessons. Part 2.—The application of arithmetic to composing room problems. Clear concise explanations of various operations (spacing, estimating, and proportioning pages, etc.), and the units (points, em, pica). Sets of problems relating to composing room work, time calculations, interest, banking and percentage. Forty lessons. Part 3.—Appendix—Measurement tables, mensuration rules, cube root and metric system.

VOCATIONAL ARITHMETIC FOR GIRLS.—Nettie S. Davis. 1920. Bruce Publishing Company, Milwaukee, Wis. 5 by 8—137 pages—4 parts. List price, 70 cents. A two years' course consisting of 144 lessons. (The application of arithmetic to business problems.) Prepared for girls with no knowledge of advanced mathematics.

A good text for continuation or evening classes.

Contents.—Part 1—Fundamentals of arithmetic—fractions, money, sewing problems, etc.; Part II—Decimals—sewing and domestic science problems, bills; Part III—Percentage, ratio and proportion—domestic science, sewing and carpeting problems, review; Part IV—Home-maker's problems—house furnishing, decorating, flooring, clothing, household accounts, banking, etc.

INDUSTRIAL ARITHMETIC FOR VOCATIONAL SCHOOLS.—Mary L. Gardner and Cleo Murtland. 1910-1918, Revised. D. C. Heath & Company, New York. 5 by 7—150 pages—10 C. Price, 92 cents.

A series of 946 problems—648 written exercises, 134 oral questions (with answers) and 164 "things to find out." The book has seven full-page photographic reproductions and 14 diagrams and sketches, illustrating the problems. A working knowledge of the fundamental operations of arithmetic is assumed and the problems have a direct bearing on the work of the students in millinery, sewing, marketing, factory work, textiles, household accounts, and civil problems. The exercises are intended to stimulate the interest of the students in the various subjects and contain much useful and interesting information.

"Things to find out" contain such questions as:—From what materials are hat braids made? Who benefits by a discount? What is meant by "Working capital?" What is the value of receipts? Why is raw silk boiled? Of what advantage to the mill-owner is child labour? A good textbook for junior home economics classes (day and evening) or for junior industrial classes (girls).

Contents (abbreviated).—Millinery, sewing, short methods, buying and selling, factory sewing, sample mounting and novelty work, incomes, bills and receipts, problems of (cotton, wool, silk, flax—cultivation, manufacture, etc.), industrial and civic problems (educational needs, modern and early industries, immigrants, etc.), Bibliography or references.

VOCATIONAL MATHEMATICS.—W. H. Dooley. Revised 1915-1920. D. C. Heath & Company, New York. 5 by 7½—341 pages—19 C. (10 parts). Price, $1.64.

Contains over 1,000 useful concrete problems in addition to numerous drill exercises. Is well illustrated by over 100 diagrams and plates and should retain the interest of the students. Designed by the author to supplement the regular mathematical course in Technical Schools and to teach pupils to apply what they have learned to the daily needs of manufacturing life. The book is divided into ten parts or sections, each of which may be treated as a unit course. Contains descriptions of methods and materials besides the mathematical calculations used in estimating, designing, contracting and operating. Each section deals with one branch of the mechanical trades and contains very interesting and valuable information both in the explanations and problems. The combining of the different parts into one compact volume makes the book particularly suited to evening classes and general industrial courses in day schools.

Contents (abbreviated).—Part 1—*Review of Arithmetic*—elementary operations, mensuration, blueprint reading, scaling and method of solving problems; Part II—*Carpentering and Building*—woodworking, measurements, construction, building materials, etc.; Part III—*Sheet Metal Work*—Die cutting, gauges, tables; Part IV—*Bolts, Screws and Rivets*—nails, screws, threads, micrometer, etc.; Part V—*Shafts, Pulleys and Gears*—belting, speed, countershafts, gear pitch, trains of gears; Part VI—*Plumbing and Hydraulics*—water supply, drainage, capacity of pipes, pressure, velocity, power, specific gravity, etc.; Part VII—*Steam Engineering*—Heat, coal, steam heating, steam boilers, safety valves, pumps, engines, horse-power, etc.; Part VIII—*Electrical work*—commercial electricity units, meters, circuits, resistance, etc.; Part IX—*Mathematics for Machinists*—materials (iron, steel, brass, copper), lathes, speeds, planers, shapers and drilling machine; Part X—*Textile Calculations*—wool, silk, linen, cotton, etc.

Appendix—Brief explanations, definitions of terms in metric system, graphs, formulas, logarithms, trigonometry and tables of formulas.

SHOP PROBLEMS IN MATHEMATICS.—W. E. Breckenridge, S. F. Mersereau and C. F. Moore. 1910. Ginn & Company, Boston, Mass. 5 by 7½—280 pages—20 C. List price, $1.40.

There are 888 practical problems and over 100 cuts, drawings and diagrams. The cuts are of woodworking and metal working machines and the various parts are named so that students may become familiar with the machines and have a better understanding of the problems. The last eight chapters consist of a series of 280 oral and 400 written exercises designed to be used in connection with the practical or concrete problems and to develop speed and accuracy in performing purely mathematical operations. "The book is designed to correlate the work of the mathematical class-room with that of the departments of mechanic arts and science." The slide rule is treated at some length and a series of oral exercises is given to help students become proficient in its use. Emphasis is laid on short methods and checks. The text can be used in the shop to supplement the regular course in mathematics or in the mathematical classroom for apprentices and mechanics who have had training in arithmetic and do not intend to study algebra, geometry and trigonometry for entrance to university.

Contents (abbreviated).—Board measure, house building, various measurements, pulleys, etc., areas, volumes, weights, turning, pattern making, foundry work, forging, gearing, cutting speeds, micrometer, vernier, tapers, threads, spirals, universal grinder, gas engine.

Review of calculations—short methods.

Fractions, percentage, square root, ratio and proportion, mensuration, formulas, solution of triangles, short methods, the slide rule, tables.

MATHEMATICS FOR TECHNICAL SCHOOLS.—J. M. Warren and W. H. Rutherford, 1921. Copp Clark Company, Toronto. 5½ by 8—337 pages—21 C.

Illustrated by 131 sketches and diagrams. Contains 1,955 problems with answers and 6 useful tables. Mathematical rules, methods and terms are clearly explained and followed by illustrative examples. The principles of both are arithmetic and algebra are dealt with and approximately one-half of the problems have a direct application to industrial operations. An excellent chapter of 57 pages is devoted to the mathematics of the machine shop and 17 pages are given to estimating or application of measures to the trades. A very good textbook for general industrial students.

Contents.—The fundamental operations of arithmetic; fractions; decimals; percentage; weights and measures; specific gravity; square root; application of measures to the trades; algebraic notation; simple equations; the fundamental operations of algebra; formulas; mensuration of areas; ratio and proportion; simultaneous equations—formulas (continued); graphs; mathematics of the machine shop; logarithms; mensuration of solids; resolution into factors; indices and surds; quadratic equations; variation; geometrical progression; miscellaneous exercises; tables—decimal equivalents, weight and specific gravity, logarithms, antilogarithms, answers. Index.

SHOP MATHEMATICS—*SHOP ARITHMETIC.*—Part 1—E. B. Norris & K. G. Smith. 8th Impression. 1912. McGraw-Hill Book Company, New York. 6 by 9—187 pages—20 C. List price, $1.75.

Contains 228 practical shop problems and over 50 diagrams and sketches. The book " presents the first half of the instruction in shop mathematics as developed and used by the Extension Division of the University of Wisconsin ". The first twelve chapters are devoted to applied arithmetic and the remaining eight to the principles of mechanics and practice in the use of simple formulas. Explains the three fundamental types of machines—Lever, Chord and Inclined Plane or Wedge, and shows the use of these in different mechanical appliances. The text is specially adapted to evening and correspondence classes for metal working trades, but is also suitable for junior industrial classes.

Contents (abbreviated).—Fractions, money and wages, decimals, percentage, ratio and proportion, areas and volumes, roots and powers, tables. Levers, tackle blocks, jack screws, power and energy, belting, horse power of engines, mechanics of fluids, heat and strength of materials.

SHOP MATHEMATICS—*ADVANCED SHOP MATHEMATICS*—Part II—E. B. Norris & R. T. Craigo. 8th Impression. 1913. McGraw-Hill Book Company, New York. 6 by 9—214 pages—20 C. List price, $1.75.

Contains 212 practical problems, and over 80 diagrams and illustrations besides logarithms and trigonometric tables. Follows Part I "Shop Arithmetic" and presents second half of course of the Extension Division of the University of Wisconsin. Covers algebra, geometry, trigonometry and logarithms as applied to shop work and used by skilled mechanics. Carefully explains the terms used and the methods of performing the various operations and works out illustrative problems. The work is too advanced for mechanics who have not had at least the full elementary school training in mathematics. The text is suitable for matriculation classes to supplement the regular texts on algebra, geometry and trigonometry or for senior trade or industrial classes in place of the regular texts on each subject.

Contents (abbreviated).—Algebra—Formulas, terms, addition, subtraction multiplication and rivision, equations (transformation, transposition and cancellation), simple and simultaneous equations, tables and curves, equations of curves. Geometry—Definitions, geometric constructions and theorms, constructions and properties of geometric figures, areas, volumes, etc. Trigonometry—Tangent, cotangent, sine, cosine, secant and cosecant and uses of these functions. Screw threads and spirals, solution of triangles. Logarithms—The principle of log's, fractional exponents, tables, antilogarithms, uses of log's, decimals, powers, roots and trigonometrical functions.

PRACTICAL MATHEMATICS—*ARITHMETIC WITH APPLICATIONS.* Part I.—C. I. Palmer. 2nd Edition. 1918. McGraw-Hill Book Company, Inc., New York. 5 by 7—152 pages—9 C. Price, $1.25, or $5 per set of 4 volumes.

Note.—These four volumes are "the outgrowth of a course in practical mathematics given in the evening classes of Armour Institute of Technology," Chicago. Written for adults who have had only elementary training in mathematics. Over 2,000 drill exercises and problems. The books contain much useful information on the subjects to which the mathematics is applied.

Volume I. Contains over 800 miscellaneous, concrete exercises and problems, with answers and 20 illustrations. The problems are interesting and suitable to all branches of mechanics. A concise treatment of arithmetic with applications. Explains simply but clearly the signs and symbols, rules and formulas and the methods of performing the various operations. Should be a good text for evening and continuation classes.

Contents (abbreviated).—Preliminary work and review, fractions, decimals, short methods, and checks, weights and measures, percentage and applications, ratio and proportion, density, powers, roots, tables.

PRACTICAL MATHEMATICS—*GEOMETRY WITH APPLICATIONS.* Part II.—C. I. Palmer. 2nd Edition. 1918. McGraw-Hill Book Company, Inc., New York. 5 by 7—172 pages—9 C. Price, $1.25.

Contains 460 exercises and practical concrete problems with answers. One hundred and thirty diagrams and illustrations. All terms are clearly defined and the laws, formulas and methods of calculation explained and illustrated by examples. Problems are suitable for all classes and are interesting and instructive. The book is similar in arrangement and style to Part I, and specially adapted to evening and part-time clases although suitable for other classes as well.

Contents (abbreviated).—Lines, angles, surfaces, formulas, lumber measurements, triangles and turning, steel square, roofs, screw threads, hexagon, circles, rings, ellipse, pulleys and gears, graphical methods, protractor, scaling, vernier, constructions, prisms, volumes estimating stone and brick work, cylinders, pyramids, cones, sphere, various solids, formulas and tables.

PRACTICAL MATHEMATICS—*ALGEBRA WITH APPLICATIONS.* Part III.—C. I. Palmer. 2nd Edition. 1918. McGraw-Hill Book Company, Inc., New York. 5 by 7—188 pages—15 C. Price, $1.25.

Contains 1,146 exercises and problems with answers and 31 diagrams and curves. Similar in arrangement and application to other volumes. Emphasizes formulas and their transformation, practical applications of equations and graphical methods. Explanations are simple but clear and examples are solved in detail and in some cases in two or more ways. Suitable for evening continuation and apprentice classes.

Contents (abbreviated).—Notation and definitions, formulas and translations, positive and negative numbers, addition and subtraction, multiplication, division, factors, solution of equations, fractions, formulas, exponents, powers, roots, quadratic equations, variation, graphics.

PRACTICAL MATHEMATICS—TRIGONOMETRY WITH APPLICATIONS, Part IV.—C. I. Palmer. 2nd Edition. 1918. McGraw-Hill Book Company, Inc., New York. 5 by 7—150 pages—8 C. Price, $1.25.

Contains approximately 450 exercises and problems with answers and 77 diagrams. Is similar in style to other volumes and suitable for the same classes. Provides "sufficient work in logarithms to secure a fair degree of skill in computations." Emphasises those parts of trigonometry which may be applied directly to practical problems and gives many interesting and instructive applications dealing with railway curves, angular velocities, wind pressures, component forces, surveying, etc. Explanations and definitions are brief but clear and simple.

Contents (abbreviated)—Logarithms, with a variety of applications, trigonometry—angles, trigonometric functions, tables and their uses, right angles, spirals, ratios and plotting, ratios of more than one angle, solution of oblique triangles, resultants. General index to volumes.

CONSTRUCTIVE TEXTBOOK OF PRACTICAL MATHEMATICS—*INDUSTRIAL MATHEMATICS*, Vol. 1. By Horace W. Marsh. 1912. John Wiley & Sons, New York. 5 by 8—477 pages—15 C. List price, $3.00.

Contains 227 diagrams and illustrations and over 1,700 practical problems dealing principally with the metal working trades. "Designed to furnish the mathematics which is indispensable to the shop foreman or master mechanic." Explains briefly the mechanical methods and mathematical formulas, rules and laws and works out illustrative problems. Based on the course for day and evening classes in Pratt Institute, Brooklyn, N.Y. A complete course in applied industrial mathematics for mechanics. *Work-Book*—The author advises the use of a standard loose leaf work-book in connection with this course and outlines very thoroughly the form and use of the work-book. He emphasises neatness and regularity and explains in detail the method of keeping notes and solving assigned problems. The work-book is recommended for use with volumes I, II, III, and IV.

Contents (abbreviated)—The work-book, fundamental operations, powers, roots, fractions, weights, and measures, measuring instruments, taper, mensuration, weight, screw cutting, pulleys, belts, horse-power, equations, logarithms, slide rule, solution of triangles, six reference tables.

CONSTRUCTIVE TEXTBOOK OF PRACTICAL MATHEMATICS—*TECHNICAL ALGEBRA.* Vol. 11.: Pt. 1. By H. W. Marsh. 1913. John Wiley & Sons, Inc., New York. 5 by 8—428 pages—17 C. List price, $2.50.

Contains over 2,000 problems and examples and 140 diagrams and illustrations. (See volume 1, Work-book.) The examples deal principally with abstract quantities and consists of the solution of formulas and equations for practice purposes. The book was prepared to stimulate interest in the study of algebra by relating it to the other studies and everyday life of the student. 70 pages are devoted to the slide rule, the operation and uses of which are carefully explained. The chapter on transformation of formulas is intended to give practice in classifying and solving technical formulas and in applying the principles learned to practical problems. A very thorough chapter on logarithms is also included. The book "aims to make the student proficient in the fundamental algebraic processes and in their application to the numerous computations in technical industries." A suitable text for technical and matriculation courses but too technical for industrial courses.

Contents (abbreviated).—The work-book, algebraic notation, ratio, equation, mathematical laws, resolution and composition of forces—projection, graphic resolution, functions of angles, variation, the four fundamental operations (addition, subtraction, multiplication and division), laws of numbers, factoring, fractions, equations, binomial theorm, exponents, powers and roots, radicals, logarithms, the slide rule, transformation of formulas. 13 reference tables.

CONSTRUCTIVE TEXTBOOK OF PRACTICAL MATHEMATICS—*TECHNICAL GEOMETRY.* Volume 111. By H. W. Marsh. 1914. John Wiley & Sons., Inc., New York. 5 by 8—242 pages—10 Books (or parts). List price, $1.75.

Contains 305 theorms in plane and solid geometry and 34 problems in the construction of geometric figures. There are 120 definitions of terms used in plane geometry and 266 definitions for solid geometry. Each book consists of a number of theorms to be worked out in detail in the work-book. (Full instructions for use of work-book and methods of keeping notes are given in each volume.) All theorms are proven in two ways— 1. Construction and measurement. 2. Demonstration. A suitable text for any class commencing the study of geometry, especially if time is provided in the classroom for working out the theorms.

Contents (abbreviated).—Introduction—meaning of geometry, theorms, etc. Work-book, general and geometric axioms, abbreviations and symbols.

Plane Geometry—definitions. I. Straight lines and angles; II. Triangles and parallelograms; III. Circles; IV. Proportion. V. Similar triangles; VI. Areas; VII. Regular polygons, Incommensurables.

Solid Geometry.—Axioms, definitions, introduction—VIII. Lines and Planes dihedral angles, polyhedral angles; IX. Polyhedrons, cylinders and cones; X. The sphere. Constructions.

CONSTRUCTIVE TEXTBOOK OF PRACTICAL MATHEMATICS—*TECHNICAL TRIGONOMETRY*—Vol. IV. By H. W. Marsh. 1914. John Wiley & Sons, Inc., New York. 5 by 8—232 pages—5 C. List price, $1.75.

Contains approximately 600 exercises and 200 applied problems dealing with various measurements and calculations of surveying, mechanical design, electricity, etc. 105 diagrams and illustrations. Work-book required and explained. The result of years of teaching experience and comparative study of conventional texts and students needs. Emphasises the importance of close accurate measurements and explains the principles of trigonometry without dwelling on the purely theoretical applications. Differs considerably in method of presentation from conventional texts but is specially adapted to technical classes not requiring special preparation for matriculation.

Contents (abbreviated).—Work-book, logarithms, right angles, isosceles triangle, oblique triangle, four laws of solution, solution of triangles, functions of compound and multiple angles, slide rule—use and calculations. Seven reference tables.

ELEMENTS OF APPLIED MATHEMATICS.—H. E. Cobb. 1911. Ginn & Company, Boston, Mass. 5 by 7½. 274 pages—18 C. Price, $1.36.

Contains approximately 1,400 exercises and problems which should assist instructors in demonstrating and explaining any course of mathematics. Contains over 100 diagrams and sketches.

Shows the relation between arithmetic, geometry, algebra and trigonometry and applies each to the work in the shops and laboratories. Contains a large number of experimental exercises designed to demonstrate the problems and provide data with which to work. The book emphasises errors in measurements and short cuts in dealing with approximate numbers. Pupils are required to construct geometrical figures, graphs, curves, etc., and check the results of mathematical calculations by measurements. Chapters I-VII deal with algebra and provide drill in arithimetical computations. Chapters VI and IX-XII deal with plane geometry, angle functions and logarithms. The remaining chapters cover advanced algebra, solid geometry, the mathematical calculations of physics (heat and electricity) and the use of logarithmic paper. The text is suitable for use in matriculation classes in conjunction with the regular mathematical course. It contains interesting and practical problems and exercises which should help students to apply mathematics to the problems of shop and laboratory.

Contents (abbreviated). Measurement, approximate numbers, vernier and micrometer, levers and beams, specific gravity, geometrical constructions, squared paper, functionality, plane geometry, logarithms, slide rule, angle functions, variations, solid geometry, heat, electricity and logarithmic paper. Bibiography, log. tables.

PLANE AND SPHERICAL TRIGONOMETRY—C. I. Palmer and C. W. Leigh, 2nd Edition. 1916. McGraw-Hill Book Company, Inc., New York. 6 by 9—188 pages —9 C. List Price, $1.50.

Contains over 800 exercises or problems with answers. Only a small proportion are applied (dealing with measurements of distances, surveying, astronomy, etc.). One hundred and thirty-four diagrams. A logical treatment of trigonometry which emphasises those parts of particular use to technical students. Contents are divided into 143 sections or paragraphs with brief explanations of methods and computation and illustrative examples worked out in detail. A suitable text for matriculation and technical classes.

Contents (abbreviated).—Introduction—definitions and explanations of angles, quadrants, segments, co-ordinates, etc., trigonometric functions of one angle, right triangles, graphical representation of functions, functions of sums and differences of angles, oblique triangles, miscellaneous equations, complex numbers, spherical trigonometry.

LOGARITHMS AND OTHER TABLES FOR SCHOOLS—Frank Castle. 1920. MacMillan & Company, London. 5½ by 8—36 pages.

A paper-covered pamphlet, containing 10 tables of logarithms, natural sines, cosines and tangents, square roots, etc.; also a page of useful data for general use in mathematics.

Contents.—Useful data; logarithms; antilogarithms; natural sines; natural cosines; natural tangents; logarithms of sines; logarithms of cosines; logarithms of tangents; degrees to radians; radians to circular functions; functions of angles at 1 degree intervals; hyperbolic or naperian logarithms; powers, roots and reciprocals; square roots; from 1 to 10; square roots from 10 to 100; reciprocals of numbers from 1 to 10; exponential and hyperbolic functions.

THE SLIDE RULE—J. J. Clark. 1909. Technical Supply Co., Scranton, Pa. 5 by 7—62 pages.

Six illustrations. Explains simply and thoroughly the principles upon which the operation of the slide rule is based and demonstrates the methods of operation for the more common calculations. A handy reference for those who do not use a slide rule constantly and are not thoroughly familiar with its operation.

Contents (abbreviated)—Elementary principles (addition, subtraction) logarithms, notation and numeration of Mannheim slide rule, multiplication, division, proportion, powers, roots, trigonometric functions, gauge points, the inverted slide, how to select a slide rule, special forms of slide rules, etc.

ELEMENTARY PRACTICAL MATHEMATICS FOR TECHNICAL STUDENTS—Frank Castle. 1899-1919. 11th reprint. MacMillan & Company, Limited, St. Martin's St., London. 5 by 7—434 pages—22 C. List price, $1.25.

Contains over 1,600 exercises or problems (with answers) selected from public examination papers and over 200 diagrams and illustrations. A two-year course for practical men designed to fulfil the requirements of the "Syllabus of Practical Mathematics" issued by the Department of Science and Art, England. Covers arithmetic, mensuration, plane and solid geometry, algebra (elementary trigonometry, dynamics and calculus) graphic methods, curves, vector diagrams, logarithms, slide rule, orthographic projection and tables. Clear concise explanations of terms and operations but the application is general and many of the problems are uninteresting and have no relation to practical work. The arrangement differs from Canadian texts and the work covered is suitable for the matriculation examination of the University of London, England. The book could be used as a text for technical matriculation classes but is not designed for Canadian schools. Should be useful to teachers for reference, as source of problems and methods of explaining mathematical operations and terms. Covers the same work as "Workshop Mathematics," by same author.

WORSHOP MATHEMATICS—Part I.—Frank Castle. 1919. MacMillan & Company, Ltd., St. Martins St., London. 4½ and 6¾—169 pages—15 C. Price, 50 cents each.

Contains 1,144 problems with answers and over 50 diagrams and illustrations. Prepared for use in part-time and evening classes, for students with very limited knowledge of mathematics. The first six chapters are devoted to arithmetic, the next three (7-9) to algebra, the next four (10-13) to various measurements—length, area and angles, the last two (14-15) to mensuration—measurements of the area of different figures. Explanations are brief but clear. Use of English system of money throughout makes problems unsuited to Canadian schools. Mathematical terms are freely used but always defined. Problems are concrete, but of a very general nature. Teachers of mathematics should find the book useful as a reference.

Part II—1920—The continuance of Part I, dealing with duo-decimals, logarithms, slide rule, mensuration of circle, ellipse and irregular figures, solids and hollow forms. Algebra—factoring, fractions and equations. Graphic methods, curves and tables. Problems are of a miscellaneous nature, and not as directly applied to shop work as those in American texts. Explanations are clear and well illustrated. Contains 838 problems with answers and over 75 diagrams and illustrations.

A COURSE IN PRACTICAL MATHEMATICS.—F. M. Saxelby.—6th Edition. 1905-1919. Longmans, Green and Company, 4th Ave., and 30th St., New York. 5½ by 8¾—479 pages—30 C. Price, $3.

Thirteen examination papers and over 1,800 problems (with answers), over 200 curves and diagrams, illustrating problems and examples. Too advanced for technical school purposes except for those students in senior form of matriculation or purely technical courses such as chemistry, design, etc. The course is adapted to the syllabus of the Board of Education, England.

Contents (abbreviated).—Logarithms, trigonometry, formulas, equations and indentities, plotting of functions, laws, mean values and areas, differentiation, integration, vector algebra, solid geometry, moments of inertia, complex numbers, etc. Tables.

THE
DEPARTMENT OF LABOUR, CANADA
Hon. JAMES MURDOCK, Minister of Labour

Vocational Education

NUMBER 3 SEPTEMBER, 1922

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ISSUED BY THE TECHNICAL EDUCATION BRANCH
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DEPARTMENT OF LABOUR, CANADA
Hon. JAMES MURDOCK, Minister of Labour

VOCATIONAL EDUCATION

Number 3 September, 1922

VOCATIONAL SURVEYS IN ONTARIO

by F. S. Rutherford, Organizer of Vocational Education

The Vocational Education programme of the Province of Ontario has developed rapidly in the past few years. Principals, teachers and Boards of Education have recognized fully that the school course must be broadened if all the students of secondary school age are to be given an education that will fit them for the duties and responsibilities of citizenship.

Boards are usually in doubt as to the necessity and the best method of meeting the need for vocational courses in their schools. The Technical Branch of the Department of Education has adopted the policy of making vocational education surveys at the request of the Vocational Committee, or School Board of any community.

The information required by the Board is generally as follows:—

1. The need for vocational education in the community.
2. The type of instruction which would best suit the students to fit them for the industrial life of the community.
3 The accommodation necessary to provide this training and its most suitable location.

To secure the necessary information to answer these questions, an officer of the Technical Branch is sent to make a study of conditions as they exist, and to submit this detailed information in the form of a report, together with conclusions and recommendations as to the most effective way to provide this training. In general, the information which would have a bearing on the decision is as follows:—

1. Students attending school by age, sex and grade.
2. Adolescents not attending school—estimated as closely as possible.
3. General employment classification—industrial and commercial.
4. Employment classification of girls and women.
5. Employment classification of adolescents.
6. Growth and distribution of population and schools.
7. Lines of traffic—street and street-cars, etc.
8. Best judgment of those engaged in industrial and commercial work regarding (*a*) the most suitable preparatory training before employment; (*b*) the most suitable supplementary training during employment.
9. Preliminary information regarding the operative and manipulative skill and related knowledge required for successful participation in various occupations.

METHOD OF OBTAINING INFORMATION

(a) School Information:—

Surveys are made only at the request of the local school authorities, and usually with the co-operation of the school principals and teachers. A large part of the required information is readily obtained from the school teachers. A form is supplied on which the principals record the numbers of pupils actually attending school by age, sex and grade. When these forms are returned completed, they are combined to show the total numbers attending according to the above classification.

(b) Industrial and Commercial Information:—

In order to tabulate the facts concerning industrial and mercantile business, it has been found advisable to visit each industrial or commercial concern, and to secure the information asked for in the following questionnaire.

Survey Form Date:

(A) *Business Agenda—* Address:

1. Name of firm.
2. Names of officials.
3. Nature of business.
4. Special expansion—if any.

(B) *Classification of Employees:—*

Male	Female	Total

(C) 1. Age preferred for beginners—Male—Female.
    2. Number of adolescents employed:—
        (*a*) 14—16—Male—Female
        (*b*) 16—18—Male—Female

(D) *Special Instruction Most Helpful:—*

(1) Preparatory—before employment.
(2) Supplementary—during employment.
(3) Attitude towards employing beginners trained in a vocational school.
(4) Attitude towards rewarding or promoting employees who take vocational courses.

(E) *General opinion regarding vocational education:—*

In many cases it has been found advisable to see the employees at work, to make an analysis of the knowledge required for each pay-roll job, in an endeavour to form a decision regarding the training which could, or should, be given to meet the needs of the workers.

Employees should be given an opportunity to express their opinions on the necessity for this type of education, and the kind of training which would best suit the needs of industrial workers in the community. It has not been found possible to discuss these matters at any length while the men are at work. The employer objects to having his men interviewed on the job. The surveyor may accomplish this part of the work by visiting the Trades and Labour Council, or the various local trade unions.

DRAWING CONCLUSIONS AND MAKING RECOMMENDATIONS

A study of the school information will show the outstanding features of the local school system. It is possible to discover the numbers of students proceeding normally, and also those accelerated or retarded. By using some reliable actuarial life-table, it is possible to arrive at the numbers of persons of school age who are not attending school. The following table has been used, and results obtained from it have proved fairly accurate:—

Table showing the number living at each year of age out of a total population of 100,000 persons:—

Age	No. Living	Age	No. Living
5	1,694	14	1,617
6	1,679	15	1,612
7	1,667	16	1,606
8	1,656	17	1,599
9	1,648	18	1,592
10	1,641	19	1,584
11	1,634	20	1,575
12	1,628	21	1,566
13	1,623		

This means that out of a stationary population of 100,000 persons at all ages, there will be

1,694 between the ages of 5 and 6,
1,679 between the ages of 6 and 7,
etc., etc., etc.

The information obtained from the industries and mercantile concerns may be tabulated to show the numbers of employed persons according to the trade or commercial classification. The numbers and classification of women and adolescent workers may also be tabulated. From a study of these tables, showing what people work at in the community, and the relative importance of each trade or calling from the standpoint of providing training in a vocational school, it is possible to conclude what courses should be provided.

When a decision has been made regarding the Courses of Study, which would be of value, and which would appeal to a sufficient number of students to form teaching units, it is possible to outline the necessary accommodation. The recommendation regarding accommodation will also take into account the following factors—Use which may be made of the present schools, and the probable increase in population.

ANALYZING INDUSTRIAL EDUCATIONAL REQUIREMENTS*

Since the war job analyses have been employed very extensively and for a number of purposes. I don't believe I am wrong when I say that many firms have used this device just because it was considered the proper thing to do and that in some of these cases the findings have been put to little use. We have all heard the question asked repeatedly, "Are job analyses worth the cost?"

It is not my function to discuss the various uses to which job analyses have been put; how they have aided in wage determination, in reorganization of departments and companies, in better employment methods, in developing proper lines of promotion, and the like.

What I do want to consider is still another use of job analysis, namely, the determination of just what should go into a course of study.

Most educational institutions now have curricula which are supposed to train men specifically for a certain phase of business life. What could be a more common sense procedure than to make a careful study of just what the graduates will have to do in business and then see to it that those functions are trained for in college? But this is just what colleges have not done. They have based their courses upon opinion, upon the opinion of the faculty and upon the opinion of a few business men. Opinion may be sufficient but until it has been proved to be so, scientific men above all others should view it with suspicion.

Possibly the reason that opinion has been accepted in lieu of facts is that we have lacked the means of getting at the latter. But that is no longer the case. Job analysis offers a fairly adequate method for securing such facts.

We are concerned then in considering the use of a new method of securing facts and further in the utilization of those facts in the development of college curricula.

THE ANALYSES ITSELF

Our job analyses contained six parts. First we listed the duties of the position—what the executive did. Second, we noted the essential qualifications. That is, what he had to know in order to perform those duties. Third, we added the qualifications not essential but of value. Here was recorded such groups of information as the executive himself pointed out he ought to possess to handle his job better or such as appeared to the investigator to be of value to the executive. Command of English was a frequent entry under this heading. Fourth, the route to the job the official had himself pursued. Fifth, the probable line of promotion. In most cases this was not known to the executive and in many cases it was not clear to any one in the company. Sixth, recommendations and notes of any sort.

Let me illustrate these six points by giving the first three or four items under these six headings from a job analysis of a superintendent of a pattern shop.

1. Duties of Position.

(*a*) Supervises the work of about 70 men and takes the responsibility for the correctness and accuracy of both the pattern maker and checker.

(*b*) Selects work to be given men according to their natural ability and training.

(*c*) Studies drawings sent in to see that the principles embodied are sound from the standpoint of pattern construction, moulding and casting. For example, areas of sections may be so proportioned that undue shrinkage stresses will be set up during the cooling of the casting.

---

* **Extracts from a paper read by Dr. Edward K. Strong, Jr., before the Society of Industrial Engineers, Pittsburgh, Nov. 10, 1920. Dr. Strong is head of the Department of Vocational Education, Carnegie Institute of Technology, Pittsburgh.**

(*d*) Secures cost estimates from jobbing pattern shops and decides whether it is more economical (considering here the time element) to have patterns made outside or in own department, etc.

2. Essential Qualifications.

(*a*) Must be a first class pattern maker.

(*b*) Must know the traits and abilities of each man, whether always inclined to work slowly and accurately, or whether able to judge when accuracy may be sacrificed without detriment for the sake of speed. (May get into difficulty with the cost office through assigning the wrong man to a particular piece of work).

(*c*) Must be expert in reading drawings in order to visualize patterns in detail, the relationship of parts, the placement of cores, and the appearance of the mould when finished.

(*d*) Must be able to calculate cost of construction of pattern, etc.

3. Qualifications not essential but of value.

(*a*) Calculation of weight of castings from drawings.

(*b*) Some knowledge of chemistry and metallurgy for information during discussions in conferences, etc.

4. Route to the Job.

(*a*) Finished eight grade.

(*b*) Worked in foundry about eight months.

(*c*) In drawing room about three months.

(*d*) In pattern shop, chiefly on loam sweep work, about five years.

(*e*) During this time attended school at night taking drawing and mechanical engineering. Also did a great deal of home study, particularly on drawing, receiving instruction from his father who was a superintendent of a pattern department.

5. Line of Promotion.

(*a*) Not definitely marked.

6. Recommended by executive.

(*a*) Since the average age of men finishing a four-year technical course is 22 years, they are too old to train the memory for details connected with the work. They should start at not later than about 16 years of age, etc.

The above gives some idea of the job analyses collected this summer upon the work of executives. And possibly it gives about as good an idea as any one can get because as one attempts to digest the thousands of items he loses sight of the job analysis itself in thinking of the details......................................

THE RESULTS

So much as to how we gathered our data. Now how are we using the data to improve our existing curricula?

I can only partially answer this question. We have only started working up the data. What we will find therein and what we shall do with it, no one knows. I can only outline what we have already done.

We have gone through all our job analyses and noted down every item that pertains, for example, to the subject of English. All of these details have been carefully studied and finally summarized. Here is our conclusion as to the function of English in our Production Course.

English is to be taught in order that the student will be enabled to do five things:—

1. To express more or less technical ideas in a form which will secure the attention and action of another executive. (This seems to require among other things training in the handling of topic sentences, avoidance of ambiguous expressions, the expression of ideas in their logical order and the emphasis and forceful expression of important points).

2. To write letters of all kinds, such as: acknowledgements, inquiries, claims and complaints.
3. To express himself orally in conversation with workmen, officials, customers and general public.
4. To express himself orally, in conferences and public meetings, either from the floor or in the capacity of presiding officer. (This seems to require among other things practice in extemporaneous speaking and drill in "Robert's Rules of Order" so that the presentation of ideas will not be interfered with through lack of confidence or the inability to cope with parliamentary technicalities.
5. To write technical specifications according to established standards so that they may briefly, but fully, cover the subject and be easily understood.

In addition to these five objectives which we should like to hold the English department responsible for putting over, we have three other objectives somewhat closely related but yet outside any existing English department to-day. These three are:

1. To compile statistics in economical ways and to evaluate statistical results and present conclusions in a clear and interesting manner. (This seems to require among other things familiarity with methods of statistical tabulation, such as the Hollorith machine, with conceptions of probability and correlation, and the like).
2. To express statistical facts in the form of curves, diagrams, and charts, as well as to understand and interpret them. (Much of this should be established in college algebra, drawing and in the writing up of laboratory notes.)
3. To take an assigned problem, collect proper data, draw valid conclusions, express facts and conclusions in concise and interesting form, and fit the whole into a report so as to meet the idiosyncrasies of an executive or the interests of the general public.

These eight objectives make up very clearly and without question the second most important and second most common function of all executives from foremen to president whether in building construction, printing or production. The most common and most important function, I might say in passing, is that of handling men. These two stand head and shoulders above all other functions. Yet there is scarcely a course in the country on the handling of men and very little attention is given to English in our technical curricula—that little hardly meeting any one of these eight objectives outlined above.

APPLICATION OF RESULTS

Education, we have been told many times, has three aims:—to prepare men to earn a living, to assume the duties of citizenship and to enjoy life. These job analyses are guides to the setting up of adequate courses of study so that men will be trained to earn a living. But they throw no light on what should be done to accomplish the other two aims. Some sort of a job analysis is needed, most seriously needed, so that educators may know of what good citizenship consists and of what enjoyment consists. Until we do know, we shall have to continue stumbling around in the dark and accepting many inferior indefinite courses of study because they are supposed to contribute to those ends.

THE DALTON - LABORATORY PLAN OF EDUCATION

The Advantages and Methods of the Dalton Plan as Applied to an English Secondary School for Boys*

The failure of the schools to provide a type of education to satisfy the requirements of modern democratic life has resulted in various efforts to widen the scope of the educational systems and in the development of new methods or "ways" of teaching. One of the recent developments in teaching methods is the Dalton-Laboratory Plan which originated as an experiment in an ungraded school for girls in the United States. Later it was tried successfully in a secondary day school in Dalton from which it has spread to other secondary schools in the United States and Great Britain. No attempt has yet been made to introduce the scheme into Canadian vocational schools but, as it appears to have several advantages over the present system of classroom instruction, especially in connection with part-time and continuation classes, day or evening, it is well to know something of its claims and methods.

The headmaster of a large English secondary school for boys, who last term reorganized his time-table on this plan, prepared a memorandum beforehand for his governing body which describes the plan so clearly that it has been published by the Dalton Association for the assistance of other heads of schools undertaking the same kind of reorganization.

DEFECTS IN THE PRESENT SYSTEM OF EDUCATION

The memorandum draws attention to the following serious defects in the present system of education:—

" First, since the pupils are taught as a form and not as individuals, it is tacitly assumed that all the pupils in a form are able to progress at the same rate. This is obviously not the case, for it is well known that the clever pupils are only allowed to progress at the average rate of the form, which is slower than their own natural rate, with a consequent waste of time and loss of effort, while the dull pupils are compelled to appear to keep up with the rest of the form, with the consequence that their apparent progress is not real or solid, their understanding of the subject is merely superficial, and a distaste for the subject is inevitable.

" Secondly, because all the pupils of a form are compelled to spend the same amount of time on a subject it is also assumed that all the pupils of a form make the same progress and experience the same amount of difficulty in all the subjects of the curriculum. This is not the case, for a pupil who finds little difficulty in science is often weak in modern languages, and one who is excellent in English may find mathematics real difficult. In other words, each subject has its own sets of clever pupils and of dull pupils, and these sets vary from subject to subject. These sets require not the same, but varying amounts of time to master a given portion of a certain subject.

" Thirdly, when a pupil enters a school he hands over to his teachers the responsibility for his future progress; it is primarily the teacher's business (he thinks) to see that he learns, and not his; he does not accept, nor is he allowed to, any responsibility for his educational future; he is there to be taught and spoon-fed, rather than to do things for himself; it is the teachers' job, and not his, and not being his own particular concern he is not always a willing recipient of the mental food prepared for him by his teachers, and does not mind wasting their time or causing them trouble. This failure to inculcate a sense of responsibility in the pupil by denying him the opportunity of making arrangements for his educational progress, the failure to enlist the pupil's willing co-operation by making him feel that the success of his career is his own job, is one of the most serious defects in our present system. It is well known that a boy who is made responsible for the carrying out of a job in its entirety and who must organize his actions to that end works more efficiently, more devotedly, and with greater concentration of purpose than if his actions are directed in detail from outside.

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* Taken from a special article "The Dalton Plan in a Boy's School" in the Educational Supplement of the *Times*, London, July 29, 1922.

"It happens fairly frequently that a pupil is compelled to be absent from school for a more or less lengthy period—e.g., in the case of infectious illness. The pupil on his return is at a serious disadvantage. He cannot follow the class-work, often finds the task of catching up too much for him, loses heart and interest in consequence, and becomes a backward pupil. The difficulty of admitting new pupils after the beginning of the school year will be quite obvious.

"A pupil who fails to secure promotion at the beginning of a new year is compelled to spend another (or, at least, part of it) on the work he has been doing already for a year. In 90 per cent of cases this involves a considerable waste of time, and undoubtedly discourages the pupil, who begins to look upon himself as a failure.

"The basic principle of the Dalton Plan is that the pupil is made responsible for his own work and progress; he is made to feel that it is his own concern rather than the teachers', that it is his own job, the success of which depends on his skill, initiative, and industry. Having made him responsible for the job, he must be allowed freedom to organize his work, his materials, and his time (in short, his school life), and to secure whatever help from his teachers, his books, etc., he finds necessary for the successful completion of his task."

ADVANTAGES OF THE DALTON PLAN

"(1) Each pupil proceeds at his own natural rate, neither being kept back nor hurried along faster than he can go, stimulated to make as much progress as he can by his sense of responsibility for his job, and by increased interest in his work.

"(2) In consequence, the progress of each pupil is now real and solid, as it is the result of his own doing and experience and learning. Learning is an individual matter, and it is only by making it an individual matter to each pupil that real progress can be made. The pupil has become an active responsible agent instead of an irresponsible receptacle of the teacher's learning. The teacher cannot learn for the pupil.

"(3) Under the present system of class-teaching the teacher works up his subject for the pupil from numerous text-books, and books of reference, and the prepared meal is offered for consumption by the pupil; the Dalton Plan insists that the pupil shall do the work himself, use the reference books, make the experiments, etc. The benefit to be derived from "doing" is thus secured to the pupil. He develops initiative, versatility, and learns how to work. Remember that a pupil only matures through his own experience, not his teacher's.

"(4) The pupil is able to allocate his available time according to the difficulty which he experiences in each subject. He can give more time to the difficult subjects and less to those which he finds easy. He is thus able to round up his abilities in the various subjects, and give breadth to his accomplishment.

"(5) The pupil is under contract to work through a certain number of assignments in a certain time, and, in consequence, he must look upon the job in its entirety. He is impelled to tackle the unpleasant parts, with the pleasant, thus acquiring a habit which is not only useful, but essential to success in life.

"(6) The pupil is being trained to accept responsibility for himself, to organize his talents so as to make for success, to understand the meaning and dignity of work, and to realize the joy of self-education. The influence of this training on his after-school career must be obvious to all.

"(7) A pupil who is absent from school for any length of time proceeds with his contract when he returns at the point at which he left off. He does not miss any work. A new pupil starts the work at that point which his previous education warrants at any time of the year and goes right ahead. If a pupil is backward and fails to do the whole of the contracts in the year, he goes straight on with his next contract at the beginning of the next year instead of wasting his time retraversing the work of the previous year. There is thus no waste of time or effort on the part of any pupil.

"(8) The Dalton Plan gives elasticity to the curriculum. It becomes a much simpler matter to arrange a curriculum to suit an individual pupil's requirements than under the present system.

"(9) It is more economical in equipment than the present system. Instead of having to supply one hundred pupils each with a copy, let us say, of "The Merchant of Venice," it is only necessary to place in one of the English laboratories fifteen to twenty copies, as not more than that number will be required at any one time. It is thus possible to effect a saving in cost of books, or better still, to supply other books (fifteen to twenty copies of each), e.g., "The Tempest," "As You Like It," etc., and thus increase the range of literary work available for the pupils' use. Instead of having to supply one hundred copies of the same work twenty copies each of five different works could be provided at the same cost. In either case an economy is effected.

"(10) Compulsory homework is no longer necessary and ought not to be given. Each pupil has his monthly contract of work to carry out, and his time in school is sufficient for the purpose. If a pupil desires to follow up by wider reading and investigation an interest which he has created, or if he wishes to devote extra time to his difficulties, or in making greater progress in the execution of his contract job, his time at home is available for the purpose. This work must be of a purely voluntary nature, and the amount which is done will serve to indicate in some measure the genuine interest which the pupil feels for his work.

"(11) The "discipline" question almost disappears. The cause of mischievous and troublesome behaviour is to a great extent removed. The pupil has a quite different outlook on school life. The teacher does not impose his dicta on the unwilling pupil, but allows the pupil to appeal to him for guidance. A pupil who does not hesitate to waste his teacher's time and cause trouble is inclined to be more particular about his own.

INTRODUCING THE PLAN INTO THE SCHOOL

In order to ensure the intelligent co-operation of pupils and staff, a statement was issued to the school explaining the meaning of the reorganization, as follows:—

"Now that the annual examinations are over we are going to spend the rest of this term, i.e., the last three weeks, in trying a new way of working. This new method is supposed to have many advantages over the present one, but it will be necessary to give it an honest trial before we can say whether that is so or not. When you have tried it I shall ask you to give me your candid opinion about it and I shall give you mine; then perhaps we shall be able to decide one way or the other.

"Every boy knows that he finds some of the subjects easier to do than others; that it takes much more time to master the difficulties in one or two of the subjects than in the others, which he finds he can understand fairly easily. Also I think you know cases of boys who are near the top of the form in some subjects but below halfway or near the bottom in others. Also, of course, boys who are near the bottom in most subjects do quite well in a few. Now that is because you do not all find the same amount of difficulty in the same subject—what is comparatively easy to one boy may be fairly difficult to another. Now, what do you think we ought to do so as to give every boy a good chance to do well in all his subjects? Well, I think you will agree with me that it would be a sensible method to give each boy the opportunity to spend as much time on each subject as he himself finds necessary to master that subject. By doing so he would make good solid progress in all his subjects, and so finish his career at school much better equipped for the work that he chooses to do in after life. If we are to do as I suggest it means that each boy must be allowed to spend his time in school according to his needs. For instance, a boy who finds more difficulty in mathematics than in French would be free to spend more of his time on the subject which he finds more difficult. But at the same time, each boy would be expected to take care to keep his easier subjects up to the required standard.

"Now let me explain how this new plan works. Each of your masters will give you to start with a written statement of the amount of work you are expected to do in his subject. He will explain in the statement the best way to go about doing the work; he will tell you the best text-books to read on the subject as well as other interesting books (not text-books) which will help you, and then there will be some questions to enable you to test whether you have mastered the work set. This statement is called an assignment, and you must try to get used to calling it by that name. All the assignments make up what is called the contract of work, and you see that, like a contractor, you are responsible for seeing that this work is done in a thoroughly businesslike way. It is your job and to your interest to see that it is well done.

"Next, you will study each subject in a special room set apart for that subject. This room will be fitted with all that you require to enable you to do the work of that subject. You will find there all the books you require (text-books and reference books), pictures, maps, diagrams, apparatus, etc. The master in charge of the subject will be there ready to help you when you need his help, but I want you to realize that the more you can do for yourself the more valuable the work becomes to you. The room in which you work is called a laboratory, and we shall speak of the English laboratory, the French laboratory and so on.

"You will notice in your form time-table almost all the morning periods left blank, but almost all the afternoon periods are set apart for instruction. During the blank periods, chiefly in the morning, but also in the afternoon, you are free to go to work in any of the laboratories. Let us suppose you choose, for some good reason, to work at subject X. You proceed to X laboratory, and, if there is room, take your place. The master in charge of subject X has already explained to you his assignment, so you are in a position to begin work at once. You will find all the books and apparatus you require in the laboratory, and in getting what you want you will, of course, go about your business quietly, so as not to disturb the other workers in the laboratory. In the course of your study of subject X you may come across a difficulty, or what appears to be a difficulty. In that case you must try hard to solve the problem yourself, but if, after making an honest attempt, you fail, then the master is there to help you overcome the difficulty. It is quite right also for you to consult any of your colleagues about your difficulties, but after they have explained the work to you you must always go through it again yourself to make sure that you have thoroughly mastered that part of your work. When you feel that you have done enough work at subject X you report to the master what you have done, and then he will show you how to mark your progress on your work graph. You are now free to tackle another subject, Y, and you proceed in exactly the same way as before. It is possible that when you go to work in one of the laboratories you may find that there is no more room. In that case you ought to postpone your work in that laboratory until later, and go on with the work in some other subject. You notice that at certain times in the week you are to meet your masters as a form. This is arranged so that you may discuss your work and your difficulties altogether and get further guidance from your masters. You proceed in this way until you have completed every assignment in your contract. You must take care to keep your subjects as evenly balanced as you can—it would not be wise to finish the whole of the assignment in one subject at the expense of the others.

"While we are trying this new plan there will be no homework. All the work you are required to do is contained in your assignments. If a boy feels that he has not sufficient time in school for certain subjects he may, if he wishes, arrange with the masters to do some of the work at home. Or, again, a boy may feel that he would like to take one of the reference books home in order to read more widely about something in which he has become very interested. You will find all the masters willing to guide the reading you wish to do at home. But I want you to understand that whatever work you do at home is a matter of your own choice.

"You will notice that under this system you are allowed a great deal of freedom to enable you to organize your work according to your own particular needs. In other words, you are to be largely responsible for your own progress. Most of you, I feel sure, will make good use of this liberty, because I do not think you will be so foolish as to waste your own time and opportunities. Any boy, however, who does abuse his liberty by shirking his contract will be considered to be unfitted for a secondary training, and will be asked to make room for some other boy who is willing to work honestly.

"When you are changing from one laboratory to another go about your business smartly and quietly. It is probable that a good many boys will be moving about the school at one time, so you will easily see how necessary it is for each boy to do his best to make the machine run smoothly. Always be considerate of those who are working in the laboratory.

"The bells will ring at 9.10, 9.30, 10.15, 11, 11.45, 12.30, 1.55, 2, 2.40, 3.20, 4. In the morning the bells ring merely to tell you the time; not, please note, to change from one laboratory to another. In the afternoon they indicate a change of lessons. You will meet your form master from 9.10 to 9.30 each morning. This will be a good opportunity, after assembly and prayers, to discuss with him and with each other the work which you propose to do during the day. If you find difficulty in organizing your time and work a little chat with your form master will probably make things easier for you."

NOTE.—The Educational Supplement for August 5, 1922, contains quotations from addresses by three teachers giving their experiences with the plan. All claim decided advantages for the scheme.

A series of six articles on the Dalton Plan by Miss Parkhurst appeared in the Educational Supplement of the *Times*—July 2, 1921, to August 6, 1921.

"The Dalton-Laboratory Plan" by Evelyn Dewey, 173 pages, list price $2.00, 1922, has been published by E. P. Dutton & Co., 6815, 5th Ave., New York, N.Y.

VOCATIONAL LIBRARY

SOME PUBLICATIONS ON WOODWORKING

NOTE.—Books reviewed in "Vocational Education" are not necessarily the best available textbooks on the subject dealt with. They are those in the library of the Department of Labour, Ottawa, which have been recommended by different authorities as suitable for use in vocational schools. Some have been used with good results in Canadian schools, others are used in the schools of the United States and Great Britain. Many excellent textbooks are in use which are not found in the departmental library, but it is hoped that before long a complete list of the books used in Canadian schools will be obtained and reviews printed of those which have given satisfaction.

The purpose of these brief reviews is to assist teachers and directors to select suitable books for classroom and reference purposes. It is felt that every vocational school should have a properly organized reference library for the use of students and teachers and that the information given in these reviews should be sufficient to enable the readers to select desirable books for their schools.

The department will gladly welcome additional particulars regarding the books reviewed and information about other books which have been found satisfactory in secondary vocational schools.

HANDWORK IN WOOD.—Wm. Noyes, 1919. Manual Arts Press, Peoria, Ill., U.S.A. 6 by 9, 231 pages, 10 C. List price, $2.00.

Well illustrated by 304 photographs and drawings and contains a general bibliography of 61 books and articles with special reference for each chapter. Well indexed.

The book deals briefly with all phases of woodworking from lumbering to cabinet finishing. It is descriptive and contains no problems. The methods of using and sharpening the different kinds of tools are explained and carefully illustrated. Useful information is given regarding the equipping of a manual training woodshop, and the principles and methods of joinery and finishing.

A useful reference book for any school library. A manual training book.

Contents.—(chapter headings). Logging, sawmilling, seasoning and measuring of wood, wood hand tools, wood fastenings, equipment and care of the shop, common joints, types of wooden structures, principles of joinery, wood finishing.

ESSENTIALS OF WOODWORKING.—Ira S. Griffiths. 1920. Manual Arts Press, Peoria, Ill., U.S.A., 5 by 7¾, 190 pages, 3 parts, 13 C. List price $1.44.

Carefully illustrated by 245 drawings and photographs. Completely indexed and has three appendices containing 39 drawings of different joints, four recipes for wood finishing and six illustrated paragraphs on working drawings. Part 1 (83 pages), describes the various woodworking tools, their uses and methods of sharpening. Part 11 (31 pages), describes the various wood joints and tells how to make them. Part 111 (47 pages), describes the structure, growth and classification of woods, lumbering and milling operations and wood finishing.

A good text for manual training classes and elementary woodworking classes in vocational schools.

Contents (abbreviated).—Care of tools and bench, laying out tools, saws, planes, chisels, etc., fastenings, simple joints and joinery, elementary cabinet work, wood finishing, lumbering and milling, common woods, wood finishing. Appendices and Index.

CARPENTRY.—International Correspondence School, Scranton, Pa. Instruction papers. 6 by 8¾, 534 pages, 5 sections, 10 parts, 1920.

Carpentry, 4 parts or lessons, 209 pages; Mechanics of Carpentry, 1 part, 26 pages; Joinery, 2 parts, 104 pages; Stair Building, 1 part, 59 pages; The Steel Square, 2 parts, 136 pages.

Ten paper covered lessons, well illustrated by drawings and containing short clear descriptions of the different kinds of wood, joints and constructions; tables and formulas for calculating sizes and spacing of units in building construction; joints and construction methods of cabinet making or joinery; layout and construction of stairs; the use of the steel square. A set of review questions concludes each lesson. The complete course is published in book form for the use of those who do not take the correspondence instruction.

CARPENTRY.—G. Townsend. 1920. American Technical Society, Chicago. 5½ by 8, 258 pages. 4 parts. 22 C. List price, $1.00.

Clearly illustrated by 368 drawings and well indexed. Describes briefly the growth, structure, defects and characteristics of timber and the nature and uses of the different varieties of timber. Describes in detail the woodworking operations in building a house from laying out to finishing, except stair building. Chapters on special framing, timber trusses, towers and steeples deal with heavy construction not usually found in houses. Simply and clearly written.

Suitable for home study. A good reference book for teachers or students.

Contents (abbreviated).—Timber, carpenters' tools, laying-out, framing, joints and splices, walls, partitions, floors, roofs, special framing, timber trusses, towers and steeples, outside finish, inside finish, trim.

PATTERN-MAKING.—F. W. Turner and D. G. Town. 1914. John Wiley & Sons (Technical series), New York. 5 and 7, 114 pages, 12 C. List price, $1.00.

Illustrated by 88 line drawings and completely indexed.

A general outline of the trade and the operations of pattern-making. Explains the trade relations and specializations in the work, also the necessary qualifications of a pattern-maker. Describes briefly the special tools and materials used, the types of patterns and the operations of laying-out and making patterns.

Contents (abbreviated).—Trade relations and qualifications, relation to foundry and machine shop, allowances in patterns, special tools, lay-outs, materials, types of patterns, core prints, construction of patterns, cores, skeleton patterns, specialization in the pattern shop and foundry.

PATTERN-MAKING.—International Correspondence Schools, Scranton, Pa. Instruction Papers. 6 by 8⅝. 440 pages, 4 sections, 10 parts, 1920.

Pattern-making equipment and operations, 3 parts or lessons, 142 pages; Pattern-making materials, 1 part, 34 pages; Pattern requirements, 1 part, 39 pages; Pattern-making, 5 parts, 225 pages.

The parts or lessons consist of paper covered pamphlets, well illustrated and containing brief clear descriptions of the tools, equipment, materials, operations and principles of pattern-making. Each lesson concludes with a set of 20 review questions of a decidedly practical nature. The lessons are published in book form for reference libraries and for the use of those who do not enrol with the school for instruction.

PRACTICAL PATTERN-MAKING.—F. W. Barrows, 2nd edition. 1914. The Norman W. Henley Pub. Co., 132 Nassau St., New York. 5 by 7½. 5 Parts. 37 C. List price, $2.50.

Illustrated by 159 simple drawings, also 6 forms and 3 tables for records and cost accounting. Completely indexed.

Part 1, 30 pages.—A brief review of the history, requirements and methods of pattern-making.

Part 11, 91 pages.—The properties, uses and care of materials and tools, described carefully and completely. Methods of building up stavework and cant or segment work.

Part 111, 119 pages.—Some examples of wood patterns of various types and complete descriptions of how to make them.

Part IV, 75 pages.—Metal patterns.

Part V, 16 pages.—Cost, care and inventory of patterns.

A good reference book for patternmakers, teachers and students.

Contents (abbreviated).—Pattern-makers, pattern-making and methods; Lumber, varnishes, glue, etc.; hand tools, bench work, machine tools, fillets, stavework, cant or segment work; wood patterns for pulleys, chain wheels, cylinders, gears, screws, engines, valves, etc.; metal patterns, stripping plate, vibrating plate, globe valve, core-box, multiple core-boxes; cost of patterns, records and accounts.

ARITHMETIC FOR CARPENTERS AND BUILDERS.—R. Burdette Dale, 1915. John Wiley and Sons (Technical series), New York. Reviewed in "Vocational Education," No. 2, May, 1922.

WOODWORK EXERCISES TREATED MATHEMATICALLY.—F. E. Drury, 1912. G. Bell & Sons, Ltd., London. Reviewed in "Vocational Education," No. 2, May, 1922.

SUGGESTIONS AND OUTLINES FOR EVENING TRADE EXTENSION CLASSES.—Department of Vocational Education, Phoenix, Arizona, U.S.A. Reviewed in "Vocational Education," No. 1, January, 1922.

Contains outlines for unit courses in the steel square, estimating, etc.

THE EDUCATIONAL DEPARTMENT, HENRY DISSTON & SONS, INC., Philadelphia, U.S.A., has issued a set of bulletins or educational aids which are very useful references for shop instructors in wood-work and metal work. The following bulletins distributed to teachers free of charge are of interest to woodworking instructors.

1. The Disston Saw, Tool and File Book, 47 pages.

   Describes the construction, uses and care of the different tools manufactured by the company. Contains a very good chapter on "How a Saw Cuts".
2. The Disston Lumberman's Handbook, 154 pages. Contains a brief account of the history and development of the Disston Corporation and its products; very useful tables and information regarding the operation, care, repair and construction of circular saws, band saws, cross-cut saws; other useful information.
3. The Saw in History.
4. The File in History.

   Complete stories of the development and manufacture of these useful tools.

Monthly Labour Review, Oct.

Further material

THE
DEPARTMENT OF LABOUR, CANADA
Hon. JAMES MURDOCK, Minister of Labour

Vocational Education

NUMBER 4 OCTOBER, 1922

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1922

DEPARTMENT OF LABOUR, CANADA

Hon. JAMES MURDOCK, Minister of Labour

VOCATIONAL EDUCATION

Number 4 October, 1922

THE TRAINING OF JUVENILE INDUSTRIAL WORKERS

The Need for the Active Co-operation of Employers and Employees with the Vocational Schools

The primary reason for the existence of vocational schools and classes is the need for a special type of education and training for the boys and girls who enter industrial occupations from the elementary and secondary schools. Statistics show that over 80 per cent of Canadian children leave school before completing a high school training and that approximately one-half of these are employed between the ages of 12 and 18 years. The province of Ontario has recently extended the compulsory full-time school attendance age to 16 years and part-time attendance is compulsory until the age of 18 years, with certain exceptions. Every province is endeavouring to retain boys and girls in the schools during early adolescence and to provide special part-time and evening classes for those who are forced to work. Opinions differ concerning the nature of the work to be given in these special classes and in the full-time day schools, but it is generally agreed that for those children who enter industrial occupations the work of the schools should supplement the training received during employment and should provide technical or industrial as well as cultural instruction. It is evident that, if this be true, it is necessary for the schools to work in close co-operation with industry as represented by employers and employees.

It is a well-known fact that every employee must receive some form of training for the work which he is required to do. In the so-called unskilled or semi-skilled occupations, the training may last for a few hours only or it may be extended over a period of several months, occupying a short period each day or week. In many cases this training consists of standing by and watching other workers or in asking questions and receiving demonstrations from neighbouring workers, but, nevertheless, much of the employee's time during certain periods is occupied in learning the job. In many of the larger industrial plants, special provisions are made for the training of all employees, and in some cases the industry undertakes to provide cultural and vacational training for the workers and their families. Training facilities provided by industrial plants include: special instruction to beginners by foremen and skilled workers, vestibule schools and special training departments for beginners and those seeking advancement, apprenticeship courses, evening classes, correspondence instruction, etc. Collectively these facilities offer as large a variety of courses as is to be found in the schools under public control. Some industrial corporations assist their employees to obtain training and education from one or more of the following types of schools: special trade schools, privately endowed schools, correspondence schools, business colleges, the publicly controlled evening schools, and part-time classes.

In very few cases, however, are special efforts made to supervise the training of young industrial workers and to provide a system of training which links up the school work with the instruction and experience received on the job, so that overlapping will be avoided and the boy will develop into a good, contented citizen and competent workman. In many cases the instructors are untrained and inefficient and the courses of study are poorly organized and lack clear, definite objectives. What is needed appears to be close, active co-operation on the part of representatives of employers and employees in the various industries with the administrators of the public educational systems. The needs and opportunities of all industries and trades could be carefully analyzed and systems of training devised which would take advantage of existing agencies and eliminate many of the weaknesses which hamper development. Efforts to establish such co-operation are being made in many parts of the world, and there is evidence that great improvements may be expected in the near future. One of the outstanding efforts in Canada occurred at the Joint Conference of the Building and Construction Industries held in Ottawa, May 3-6, 1921, which is referred to under "Apprenticeship in Canada." This bulletin contains descriptions of other efforts to solve the problem and various books are reviewed for the information of those who desire to obtain additional information.

SUMMARY OF PRESENT SITUATION

The existing situation may be briefly reviewed as follows:—

1. All industrial employees receive some form of special training whether organized or not.
2. The old apprenticeship system has broken down and new methods are needed.
3. Industrial training is now generally recognized as a phase of education.
4. Opinions differ as to whether this training should be provided in schools or actual work shops or both.
5. Industrial training is now provided by the following agencies:—
    - (*a*) Public schools (including secondary vocational schools and colleges).
    - (*b*) Private and endowed schools.
    - (*c*) Corporation schools (including vestibule training).
    - (*d*) Indentured apprenticeship.
    - (*e*) Correspondence courses.
    - (*f*) Pick-up method.
6. Existing agencies are costly and inefficient, due to overlapping, lack of proper objectives, poor organization and improper teaching.
7. An efficient system must provide:—
    - (*a*) Worthy incentives.
    - (*b*) Definite objectives.
    - (*c*) Competent guidance.
    - (*d*) Technical instruction.
    - (*e*) Active practice.
    - (*f*) Frequent tests.
8. The needs, opportunities and requirements of all occupations in each branch of industry should be carefully studied in different localities.
9. Employers, employees, educationalists and employment officers should co-operate in the organization of definite schemes for training in each industry.
10. The functions of the public schools should be clearly defined.
11. The practical training provided by industries should be carefully graded and supervised.
12. There should be a co-ordinating agency between the school and industry for the purposes of vocational guidance, employment, follow-up, transfers and general supervision of welfare.

APPRENTICESHIP IN CANADA

The following leaflets issued by the Department of Labour, Ottawa, are available to any one interested in apprenticeship training in Canada:—

> "Apprenticeship in Canada," (Reprint from the *Labour Gazette*, July, 1921 —8 pages).

An article on recent developments and prevailing practice throughout the Dominion. Summarizes conditions in Canada and containes notes on apprenticeship clauses in the constitutions and agreements of various unions in the building trades, metal-working trades, printing industry, etc.

> "Apprenticeship and Craftsmanship." (Reprint from Report of the Joint Conference of the Building and Construction Industries in Canada, Ottawa, May 3-6, 1921—3 pages).

The Report of the Committee on Apprenticeship and Craftsmanship outlines a proposed system for apprentice training. The scheme consists of a National Apprenticeship Council with Local Apprenticeship Councils in various localities. The report outlines the functions, organization and rules and regulations of such councils and gives a standard form of indenture for apprenticeship.

NEW APPRENTICESHIP SYSTEM FOR THE BUILDING TRADES IN NEW YORK*

A movement toward standardizing the apprenticeship system for the building trades in New York has resulted in a series of definite recommendations for the training of men who enter the building industries. A committee on apprenticeship, consisting of representatives from builders' organizations, labour unions, public schools and other related interests, has made a thorough study of the conditions and needs with reference to the young men who set out to learn the building trades.

This Committee, which has been working under the sponsorship of the New York Building Congress, has recommended the establishment of joint trade boards for each craft, consisting of employer and labour representatives, and has further recommended both trade practice and educational work be under the supervision of these boards. That all educational work be carried out in connection with educational experts is a provision attached to this recommendation.

Under the heading "Suggested Work for Joint Boards or Apprenticeship Committees," twenty-seven specific points are made, with the suggestion that rules be perfected to cover each of them. The following are some of the steps to which special attention is called, the number in which they appear in the report having been retained, while some items have been abbreviated:—

1. Enrolment of apprentices.
2. Identification of apprentices in the trade or at work.
4. Maximum and minimum age for apprenticeship.
5. Term of apprenticeship.
6. Divisions of apprenticeship into periods for advancement.
7. Periodic examination of apprentices.
8. Granting of advanced credit to apprentices for previous experience in the trade.

*****The Industrial Education Magazine*, August, 1922.**

9. Transfer system for interchange of employment.
10. Apprentice wage by periods, while at work, or in school.
11. Overtime limits.
12. Hours per week, while at work, or in school.
13. Determination of time for school attendance.
14. Enforcement of school attendance, by employers, and by Unions.
15. Apprentice fees.
17. Statement of trade processes to be taught apprentices in each such classification; at work, and in school.
18. Approve courses of study to be taught apprentices in school instruction, including technical studies related to the trade in which they are employed, and training for citizenship.
19. Supervision of apprentices; at work, and in school.
20. Periodic reports on apprentices to Joint Trade Board; from work, and from school.
21. Regulation of adjustments; for employer, and for apprentice.
22. Minimum ratio of apprentices to journeymen.
23. Approval of employer, indicating,—
    (1) that his work is sufficiently varied and equipment sufficiently complete to give the apprentice the required diversity of trade experience to cover the trade classification, and
    (2) his ability to provide continuous employment to the apprentice during his apprenticeship period subject to conditions not under control.
26. Granting of diploma upon termination of apprenticeship.
27. The definite provision of classes in school for the instruction of apprentices.

The committee emphasizes the need by the apprentice for an all-round experience and for related schooling and training in citizenship. It is not proposed to establish any new organization for this programme of apprenticeship training, but to bring together the existing trade agencies and the educational facilities for the upbuilding of the apprenticeship system.

APPRENTICESHIP IN WISCONSIN*

The problem of apprenticeship is one which no longer is a matter for individual concern only. Its import is so vital that every trade, every industry, and ultimately every citizen is affected by it. Apprenticeship means better training for skill in industry; it means more efficient production and a lessening of the relative cost of living.

Since apprenticeship is a matter of concern not alone to individual employers and individual industries, it is not a sound policy to fritter away the energies of state agents in attacking the apprenticeship problem through individualistic methods. In this day of organization and concerted effort it is imperative that an apprenticeship scheme must be effected by co-operation and through the work and medium of organizations which are to be found everywhere in industry. It is better that a few trades be under an apprenticeship agreement where the apprenticeships are fairly well standardized, than it is to have an hundred different establishments and an hundred different schemes of apprenticeship in the same industry. In a state system of apprenticeship, it is necessary to work through large groups, particularly through trade organizations. . . .

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*Extract from Report of Committee on Trade Apprenticeship, of the National Association of Corporation Schools, Eighth Annual Convention. New York, N.Y., May, 1920.

What a standardized apprenticeship means is not literally the same thing for every boy in every shop, but the fundamental conditions alike, and a guarantee to him that the experience essential in obtaining the groundwork of the trade shall be given to him. Where shops attempt to use an apprentice where they are obviously unable to furnish him these fundamentals of the trade, the state must refuse to approve such an apprenticeship. . . .

What is Apprenticeship?—The word "apprenticeship" is derived from the French word "apprendre," which means "to learn." It represents a period of employment which constitutes training; the apprentice receiving his remuneration for service partly in the form of money and partly through instruction in the particular trade, craft, or business.

Why is Apprenticeship Necessary?—Because industry requires skilled labour it is necessary to train men in skilled occupations. Apprenticeship is necessary because competency in any trade, craft, or business is accomplished only by experience in that particular business. Schools cannot afford commercial experience, consequently men must be trained in the industries. Apprenticeship is the oldest, as well as the newest and most satisfactory, method of training men to become competent in any occupation. It is particularly necessary at this time because the employers have neglected this training, and again because the skilled immigration, upon which industry in this country has been dependent, is now non-existent. . . .

What Constitutes a Trade?—A trade from the point of view of apprenticeship is a skilled occupation requiring a broad knowledge and experience, and usually a relatively long period of training. It can be contrasted with a special occupation which requires efficiency in one particular process only. In other words, a trade implies a mastery of a number of related processes and which may constitute a separate division of an industry. Examples of a trade may be cited as—machinist, plumber, custom tailor, watchmaker, etc. . . .

How is it Determined What Constitutes a Trade?—This is accomplished by conferences with leading representatives in the different trades who are advised to counsel together, under the auspices of the Industrial Commission, on what is customary and good practice in the particular occupations, and who by experience can relate the processes of the different branches of the industry, so that a sound judgment can be ascertained on this question. . . .

How do Apprentices get Their Technical Information?—The state has provided vocational schools which are intended to take care of this phase of apprenticeship and it is incumbent upon these schools to provide such instruction as may be determined to meet the requirements of the employers of apprentices and the Industrial Commission of Wisconsin.

When Must Apprentices Attend School?—It is necessary for apprentices to attend school five hours per week, or its equivalent, the equivalent meaning anything more than five hours of school which may be provided during slack seasons.

How Long Must Apprentices Attend Technical School?—It is established by law that apprentices must attend school during the first two years of their apprenticeship.

What Technical Information Must the Apprentices be Taught?—This must be determined according to the conditions of the different trades, but generally includes such training as English, elements of citizenship, trade arithmetic, trade science, trade drawing, and the like. . . . .

How is Vocational School Attendance Enforced?—Responsibility for the attendance is placed upon the employer, but the vocational school director must notify the employer of any absences. Where boys are absent from school for any period without good cause, the employer is required by law to penalize the apprentice by deducting from his wages three hours' pay for every hour the apprentice is absent from school. . . . . .

How do Employers Take to Apprenticeship?—Enlightened employers, almost without exception, are in favour of apprenticeship, and many other employers are theoretically in favour of apprenticeship but are influenced by their own experience and discouragements which they have encountered with apprenticeship in the past before the state assistance came into being. They do not realize how the new conditions affect the situation and how much more easily apprenticeship can be arranged when it is supervised by public authority. Of course, there are other employers who are too selfish and too self-centered to bother with an apprentice. They are the men who want to get something for nothing. They want to use up skilled mechanics and yet do not wish to assume their responsibility in training mechanics. These men will grow fewer in number through the trend of the times.

What is the Attitude of Trade Unions Toward Apprenticeship?—Trade unions are in favour of apprenticeship because it means maintaining the dignity of their trades, and it means the development of more intelligent men from among whom they may recruit new members for their organization. Labour knows that to oppose skilled training would be to throw sand in its own eyes. With the exception of a very small number of self-centered organizations, trade unions give their support to apprenticeship. There is a misconception in the public mind on this point. Most casual observers think trade unionists oppose apprenticeship. They do not oppose apprenticeship, they merely wish to keep the number of apprentices employed in some relation to the number of journeymen employed in the trade. This is sound because it makes possible adequate training for the apprentices. If the boy is to become skilled he must work with skilled men. It should be noted, further, that there never has been a time in history when the employers of the country as a general thing, had as many apprentices as the rules of the unions allow.

What is the Educators' Attitude Toward Apprenticeship?—Unfortunately some educators seem indifferent toward apprenticeship. They fall heir to a delusion that there is no educational value in work. Many seem to think that a boy can learn to be a skilled mechanic apart from industry and within the four walls of a school. In order to swim, one must naturally go into the water. It is the same in industry, if one wants to learn industry or a skilled trade, it is necessary to work in that skilled trade under all the commercial, social, and economic conditions in which skilled workers are employed. It is because of the apparent apathy of educators toward apprenticeship, and vocational training in general, that a new vocational educational movement has come into being. If boys in the schools who are not qualified for professional activity were encouraged to take up trades, it would be better for the boys as well as for the whole country. A good mechanic is better than a poor clerk, and infinitely more able to contribute to the production of society. There are, of course, many educators who do not take such a narrow position. Many educators are sincerely interested in apprenticeship; and we hope the time is not far distant when educators generally will be interested in the development of apprenticeship training.

EMPLOYEE TRAINING IN THE WESTERN ELECTRIC COMPANY*

In general, it is the company's policy, and what it considers to be its responsibility, to assist in developing the employee to the full extent of that employee's capacity. It matters not where the employee had to turn off in his previous work or education. Opportunities are provided in a number of ways, and this is a part of the company's plan of selective training.

The Western Electric Company can place employees in one hundred and forty different kinds of work. It employs labourers, clerks, skilled mechanics, salesmen, technical experts, lawyers, doctors and nurses.

In fact, the company taken as a whole is a complete commercial and industrial community.

It is, therefore, obvious that the work is not narrowing, as the experience gained in any one of the three divisions of the company's organization will be found valuable anywhere.

And it is important to remember that advancement is open to every employee, man or woman, who successfully carried out one of the courses of selective training that has been developed. An employee's natural abilities are observed by trained supervisors and directed into channels that will best serve the interests of the employee and the company.

The company has made it a policy to fill its minor and major executive positions wherever possible with men from the ranks. It provides the opportunities and the employees must provide the brains and the ability and willingness to use them.

It is customary for a new employee to confer with a representative of the company in order to decide in what department he is to begin work. Here the employee's work is supervised, and it may be that he will be assigned to work of various kinds in order to determine in what direction his abilities lie.

THE ENGINEERING DIVISION

In order to provide a working organization fully equipped to handle these problems intelligently and as speedily as possible there is a constant need for trained men.

To meet the company's requirements these trained men may be divided into two general classes; one class consists of men who have been graduated from schools or universities providing technical and scientific training. The other class consists of younger men who come from technical or other high schools and who desire eventually to become telephone engineers.

COURSES FOR TECHNICAL GRADUATES

Technical graduates who have completed four years of college work are put through a course of intensive training planned to give them an insight into those branches of the company's activities with which they must be familiar before they can intelligently study the problems to which they will be finally assigned.

The men begin work in the Engineering Division, either at New York or Hawthorne. Here they spend about three months in the various engineering groups. The men are assigned to the Manufacturing Division at the Hawthorne Works, and also spend a few months installing telephone central office equipment. Some time is also given to equipment drafting.

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*Extracts from bulletin "Opportunity," distributed gratis by the Western Electric Company, 195 Broadway, New York.

COURSES FOR HIGH SCHOOL BOYS AND GRAMMAR SCHOOL GRADUATES

In the New York branches of the Engineering Division grammar school graduates and high school boys are organized into classes upon entering the company's employ. These classes study the company's history, its organization and rules and subjects relating to electricity and its applications. Evening high school study on electrical subjects is also encouraged. Those boys whose work has proven satisfactory are assigned to clerical positions. Those with more advanced training are made laboratory assistants. Further study will eventually qualify them for taking up engineering work.

Two-year and four-year high school graduates are eligible for positions in the Equipment Drafting Department at Hawthorne.

Their training consists of actual work on various parts of telephone central office equipments and weekly lectures relating to their work.

Upon return to their permanent assignments in the Drafting Department these men may by further study qualify in three or four years for telephone engineering work.

Men with four years of technical high school and two years in preparatory school can take up work in the Equipment Engineering Department after a one-year course devoted to work in the shops, laboratories, in telephone exchanges and drafting room.

THE MANUFACTURING DIVISION

It is obvious that the Manufacturing Division offers a great variety of opportunities for technically trained men.

Selective training courses are, however, also open to high school and grammar school boys.

There is also an Apprentice System which prepares boys for the tool-makers' and instrument-makers' trades. This takes in boys between the ages of 17 and 20, boys who have a good working knowledge of arithmetic and can furnish satisfactory character references. This course has in the past developed young men capable of becoming foremen, tool designers, special investigators, inspectors and the like. Boys 16 years of age who enter the company's employ as office boys, by attending certain classes and doing assigned studying until they are 17, may enter the apprentice course or other courses open to them.

COURSES FOR COLLEGE GRADUATES, HIGH SCHOOL BOYS AND GRAMMAR SCHOOL GRADUATES

Technical graduates enter a one-year course of selective training, which is sufficiently comprehensive to give them a technical knowledge of manufacturing methods and equipment and factory problems.

The men are at the Hawthorne Works for practically all of the training period, with the exception of some time spent in the field installing telephone exchanges.

High school and grammar school boys who desire to fit themselves for clerical work are given a year's training. This is what is known as the Accounting Course.

The Production Course, which is the entering wedge for shop commercial work, extends over a period of forty weeks.

The Technical Course is for high school graduates and consists of three years' training in tool designing, including class-room work in practical mathematics, mechanics, and tool designing.

The Installation Department maintains seven training schools, one in each of the following cities: New York, Philadelphia, Baltimore, Minneapolis, Pittsburg, Chicago, and St. Louis. There is a short training or trying-out period in the schools, after which work is assigned in the field. After six months of such service there is another period of school work, consisting of instruction in electrical theory and telephone practice.

The graduates of the Installation School who show capacity for leadership are then taken under special observation for development as supervisors and are given training in every branch of the work.

THE APPRENTICE COURSE

The term of service in the Apprentice Course is four years, which includes time spent in class and attending lectures.

The apprentice is obliged to make out, with his parents or guardian, an indenture or agreement which binds him to observe certain rules and perform certain services during his apprenticeship. In this agreement are also stipulated the rates of pay for each period of the apprenticeship and other matters relating to the apprentice's relations with the company. Further details will gladly be furnished upon application to the Hawthorne Works Employment Department.

THE COMMERCIAL DIVISION

Graduates of business administration schools will find openings in financial work, credits, and collections; accounting, auditing, selling, and distributing in both the Distributing and General Supervisory Organization.

Art graduates who have specialized to some extent in economics will fit in well in clerical, accounting, correspondence, and service work in the distributing houses.

There are also openings in the distributing house organizations for high school graduates and grammar school boys in the more subordinate positions, with ample opportunity for advancement.

COURSES FOR COLLEGE GRADUATES, HIGH SCHOOL AND GRAMMAR SCHOOL BOYS

The Commercial Course for college graduates extends over a period of one year. During the first six months the men are assigned to a distributing house in one of the principal cities nearest their homes and study the various phases of distributing house work. The second six months of the course are spent in the shops at Hawthorne and on the road installing telephone exchanges. At the end of the year the men return to the houses at which they started and take up their duties along those lines for which they are best fitted.

As a rule the boys begin work as messengers, junior clerks, or selectors in the warehousing department, depending upon their previous training.

The boys are given ample opportunity to familiarize themselves with the company's organization. Transfers from one department to another are arranged for as rapidly as possible so that the boys may get all the angles of the company's methods of doing things.

SPECIAL EVENING CLASSES

In response to numerous requests from club members a number of evening classes have been organized to enable men and women to increase their store of knowledge and become of more use to themselves and incidentally to the company. Some of the subjects taught are electricity and magnetism, telephone practice, mathematics, mechanical drawing, manufacturing principles, English, typewriting, and sewing.

The courses are divided into grades and competent teachers are provided from among club members.

These classes have proven exceedingly popular, and this is evidenced by the large enrolments, which have passed the one thousand mark.

CO-OPERATION WITH OUTSIDE SCHOOLS

Many employees at the Hawthorne Works and distributing houses, for one reason or another, prefer to pursue their studies at various outside night schools. The company has accordingly arranged to co-operate with its employees in directing them to the proper schools, and, for example, through the medium of an Information Bureau established in the Hawthorne Club Rooms advises what subjects to study for any particular training desired.

The Works' Educational Department is in close touch with these schools, and is thus enabled to keep a record of the progress of those attending the classes. Such records are valuable when an employee's advancement comes under consideration.

CHILD LABOUR IN THE UNITED STATES*

The total number of children 10 to 15 years of age, inclusive, engaged in gainful occupations in the United States as enumerated at the Fourteenth Decennial Census taken as of January 1, 1920, was 1,060,858. This number comprised 714,248 boys, or 11·3 per cent of the total number of boys aged 10 to 15 years, inclusive, and 346,610 girls, or 5·6 per cent of the girls within those age limits.

The total number of children gainfully occupied was only slightly more than half as large in 1920 as in 1910, the decrease having been 46·7 per cent. The largest percentage of decrease for a single occupation, 60·2, appeared in the extraction of minerals; the next largest, 54·8, in agriculture, forestry, and animal husbandry (the figure for these occupations was influenced by the change in the census date from April 15 in 1910 to January 1 in 1920); and the next, 51·9, in domestic and personal service. Manufacturing and mechanical industries showed a decrease of 29 per cent. An increase of 12·9 per cent appeared in clerical occupations.

Children gainfully occupied in agriculture, forestry and animal husbandry constituted 61 per cent, and those employed in manufacturing and mechanical industries, 17·5 per cent, of the total number of children gainfully occupied. Nearly three-tenths of the total number reported for manufacturing and mechanical industries were employed in the textile industries.

TRAINING FOR ENGINEERING APPRENTICES IN SCOTLAND

A committee on engineering training appointed by the Council of the Institution of Engineers and Shipbuilders in Scotland has recently issued a report relating to the education and training of boys who leave school between the ages of 16 and 18 and who in most cases have taken the "higher leaving certificate."

The committee recommended that special attention be given in the elementary schools to mathematics, elementary science, solid geometry and some form of manual training, and that boys at about 12 years of age whose class reports supported by examinations, etc., show that these lines would prove too theoretical and beyond their capacity, should be separated from the more studious and given a training along practical and manual lines. Boys who show an aptitude for higher study, especially in mathematics, should be encouraged to go forward for the higher leaving certificate. In the secondary schools, they recommended that science and solid geometry should be carried to a more advanced stage than at present, and boys should be granted facilities for visiting engineering works to stimulate their interest in practical work; the teaching of engineering subjects in the school, however, is not recommended. For apprentices able to take the higher training, in order to fit them for higher work in the engineering industry, it is recommended that they spend the summer in the workshop and the winter at college, and that they spend three years and a half in the workshop before receiving their "lines." It is also recommended that, where possible, not less than one year and not more than two should be spent in the workship before proceeding to college. During the first period of workship training attendance at evening classes in preparation for the day classes is recommended as a means of maintaining habits of study. It is considered that the course of study leading to graduation should be a four-year course. For apprentices who have taken their higher leaving certificates, the committee were strongly of the opinion that they should enter the workshop under the same general conditions and should be subject to the same discipline as the boys who may be termed the rank and file. It is thought more practicable, however, to provide them with short courses of special training in the foundry, drawing office, laboratory, testing department, etc., which would be outside the experience usually included in the training of whole-time apprentices. In the workshop training of apprentices, the committee recommended that specific courses of instruction in manual operations should be organized for apprentices, under the guidance of a trained mechanic chosen for his ability to impart his knowledge of workshop methods. It is also recommended that shortly after technical studies have been completed there should be provided courses of instruction in industrial organization; that classes in works organizations, modern production methods, time study, psychology, and methods of instruction should be provided at one or more of the colleges, and those who wish to qualify for promotion to positions of foremen, inspectors, rate fixers, planners, controllers, etc., should be encouraged to take up the systematic study of these subjects. The committee also recommended that every effort should be made to secure that the college boys should take as much part as the other apprentices in organized work sports, so that the benefit of common effort on the playing field may be enjoyed by all the apprentices in the industry without distinction of age, education or training.

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*From Weekly News Summary—U.S. Department of Labour, Children's Bureau, Washington, August 19-26, 1922.

INTERNATIONAL RELATIONS IN EDUCATION*

At the recent meeting of the National Educational Association in Boston it was proposed to form an International Educational Association that would "federate the numerous educational organizations throughout the world" and would also, it is hoped, act as a "permanent bureau or council of international research."

It was further proposed that this group should take the lead in organizing a world peace exposition, to be held in 1930, at which time "the nations would come together on common ground, bringing the fruits of peace." As a preliminary to this, forty-five countries have been invited to a world conference on education in 1923, the conference to be held just before the annual N.E.A. convention.

The committee in charge of the matter has outlined a programme which covers the following topics:—

(1) The teaching of international civics, which will acquaint the rising generation with the various points of contact made necessary and facilitated by the modern means of communication and trade.

(2) The organization of text-book material used in the schools such as will give a more accurate visualization of the dominant traits and ideals of the nations.

(3) The exchange of teachers and students through scholarships to foreign countries.

(4) A programme looking to universal education and to character education, conduct and behaviour.

(5) An exchange of articles on education setting forth programmes and methods used in the various countries and through an exchange of educational periodicals.

(6) The designation of a day to be observed by all which may be known as "World Goodwill Day," upon which programmes may be given such as will promote international friendship.

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*The Toronto *Globe*, September 23, 1922.

The *Publishers' Weekly,* commenting upon the proposal, says: "Such a plan would turn the great power of organized education to its highest possible service, and no group could talk in world terms with such good chance of effect on future progress as could the leaders of our school life. No group is so internationally minded as the schools, and their proclamation has had the effect of immediately striking a responsive chord."

PHILOSOPHY OF LEARNING A TRADE

By Milton P. Higgins

To make a good living; to have a happy family; to make preparation for hard times; to wear overalls in the shop with the same dignity as good clothes are worn on Sunday; to be confident you are laying a sure foundation for any future success; to feel that you are master of your work, and that you share the creative spirit; this is the wholesome philosophy of learning a trade.

VOCATIONAL LIBRARY

SOME PUBLICATIONS ON EMPLOYEE TRAINING

Books mentioned in these paragraphs should be helpful to teachers, employers and employees who wish to study the problem of providing suitable education and training for juvenile industrial workers.

AMERICAN APPRENTICESHIP AND INDUSTRIAL EDUCATION—Paul H. Douglas. Edited by the Faculty of Political Science, Columbia University, New York. Volume XCV, Number 2. Whole Number 216. 1921. Longmans, Green & Co., Agents, 443 Fourth Avenue, New York, 6 by 9 (Paper covered) 348 p., 4 Parts, 16 c. List Price, $3.50.

An educational and economic study of the problem of providing proper training for young industrial employees. Well indexed and contains a list of 14 references on the various topics discussed. After carefully reviewing the situation the author suggests seventeen steps which should be taken to bring the various factors of the problem into harmony and make it possible for juvenile workers to develop themselves. These include:—increasing compulsory school attendance age to 16 years; scholarships; revision of existing school curricula; vocational guidance; continuation classes from 16 to 18 years; trade schools; vestibule training; organization of each industry for collective action; apprenticeship legislation; abolition of dual control in education; etc.

A well written and complete study of industrial training. Contents (abbreviated):—American apprenticeship, its background, development and decay; juvenile labour and the educational requirements of modern industry; modern substitutes for apprenticeship—(vocational guidance, schools, etc.); social and economic aspects and suggested programme.

TRAINING INDUSTRIAL WORKERS—Roy Willmarth Kelly. 1920. Ronald Press Company, New York. 6 by 8½—437 p. 20 c. List Price, $5.00.

Thoroughly indexed and contains 70 tables, graphs, and diagrams. 12 appendices (88 pages) include an extensive classified bibliography, a classification of industrial schools and training methods, apprenticeship forms and training methods, synopses of educational surveys, etc. A book for industrial managers and educational directors. It points out the necessity of cooperation between schools and industry and the methods of providing the needed training and education for industrial workers. It also outlines "the functions of industrial education to be discharged by federal, state and local governments." A comprehensive study of all phases of industrial education.

Contents (abbreviated).—Industrial training and present day industry; Inadequate training and its results; Earlier forms of apprenticeship; Modern industrial education; National and State Aid; Secondary Technical schools and their possibilities; Relation of employment management to industrial training; Apprenticeship; Vestibule training; Executive training; Foreman training; Vocational guidance; Promoting and rating employees; Participation in management; Surveys; A new emphasis in education and a new programme.

EMPLOYEE TRAINING—John Van Liew Morris, Ph. D. 1921. McGraw Hill Book Company, New York. 6 by 8—311 p. 15 c. Five Sections. List Price, $3.00.

Contains a selected bibliography on various forms of employee training and is carefully indexed.

A careful study of the methods and scope of employee training in the various manufacturing industries and railway shops of the United States. The author concludes that plants employing over 3,000 workers can successfully operate a training department and provide special training for apprentices, machine operators and specialists and a general training for the supervisory force of the corporation. Some form of supervised training in actual operations as well as supplementary training in classes is needed for all juvenile workers and industry has an important part to play in any system of vocational education.

Contents (abbreviated).—The nature of the study; Comprehensive programmes for apprenticeship and special training; Programmes emphasizing apprenticeship; Programmes emphasizing special training; Programmes of primarily technical instruction; Apprenticeship training; Training of technical men, special training, general instruction, conclusions.

INDUSTRIAL TRAINING (with special reference to the conditions prevailing in London). N. B. Dearle, M.A. 1914. P. S. King & Son, Westminster. 5¾ by 8¾—596 p. 18 c. List Price, $3.00.

The result of an inquiry into the problems of unemployment in the London building trades. A report of conditions in Greater London including comparisons with other English cities, followed by a complete study of the problems of boy labour and training for trades. Outlines a suggested scheme for remedying existing weaknesses in methods of training and employment. The scheme contains 27 suggestions including: proposed legislative changes, methods of organization and co-operation, extension of the period of control from 17 to 18 years of age, reorganization of elementary education, trade schools and continuation classes, minimum wages, reduced hours of labour to eventual maximum of 42 hours per week, etc.

Completely indexed and contains eight appendices giving forms and tables from the London survey and extracts from existing by-laws and legislation affecting child labour.

Contents (abbreviated).—Scope of the problem; Trades and industries of London; Existing conditions, London; Definitions and classification of terms; Apprenticeship; Conditions of Employment; The school and the shop; Juvenile employment; Unemployment; Future needs.

THE WORKER AND THE STATE—Arthur D. Dean, S. B. 1912. The Century Co., New York. 5 by 7½—355 p. 11 c. List Price, $1.75.

This book is not indexed but contains an extensive bibliography of books on all branches of vocational education published prior to 1911. A careful and extensive study of the industrial and social conditions of Americaan workers and the need for a system of vocational training in connection with the public schools. The principles underlying the organization of vocational work are clearly stated and the changes needed in the existing educational system are pointed out. The author explains the purpose and functions of the various types of schools and emphasizes importance of continuation classes. Many of the methods and means suggested have been adopted in the United States and Canada.

Contents (abbreviated).—History of industry; Educational significance of modern industry; Supplemental education in relation to industry; Women in industry; Trade schools and trade unions; Schools in the factory; Declaration of principles.

THE PRINCIPLES OF APPRENTICE TRAINING—(with special reference to the Engineering Industry.)—A. P. M. Fleming & J. G. Pearce. 1916. Longmans, Green and Co., New York. List Price $1.20. 5 by 7½. Four parts. 202 p. 12 c. 3 appendices.

Well indexed and contain three appendices giving a syllabus of courses in the British Westinghouse Works, outline of courses in Siemens and Halske's Trade School and brief bibliography. A study of conditions in England affecting the skilled manual workers especially in engineering manufacture; deals with the importance of training, the requirements of skilled occupations, the need for vocational guidance, and methods of training. Emphasizes the necessity of co-operation between schools and industry.

Contents (abbreviated).—The economic aspect; Characteristics required by artizan workers and relation of education to industry; Vocational selection; Apprentice training with examples; Conclusion.

THE TRAINING OF A WORKING BOY—H. S. Pelham, M.A. 1914. MacMillan and Co., Limited, St. Martin's Street, London. 5 by 7½—165 p. 11 c. List Price $1.00.

Indexed and contains three appendices showing plan and equipment for a summer camp, and suggested timetable for a holiday school. A study of the working boys, from 12 to 17 years of age, in the English Midlands and the problem of their training. Lays particular emphasis on the importance of personal service by men qualified to lead boys. The book indicates the work to be done by individuals and organizations other than industrial corporations and schools.

Contents (abbreviated).—The boy, his home, education and recreation; Child employment; Boy labour; Juvenile offenders; How to help the boy, the club, the summer camp, religious instruction.

BOY LABOUR AND APPRENTICESHIP—Reginald A. Bray. 1911. Constable & Co., Ltd., London. List Price $1.00. 4½ by 7½—248 p.—6 c.

Indexed and contains an extensive list of books and reports on child labour and apprenticeship published from 1898 to 1910.

A study of apprenticeship in England. Reviews the history and development of boy labour and apprenticeship and recommends definite methods for establishing a new apprenticeship system suitable to existing industrial conditions.

Contents (abbreviated).—Essentials of apprenticeship; Old apprenticeship systems; The age of reconstruction; Guardianship of the State; Apprenticeship of today; The new apprenticeship, etc.

BOY WORK EXPLOITATION OR TRAINING?—Spencer J. Gibb. 1919. T. Fisher Unwin Ltd., Adelphi Terrace, London. 5 by 7½—223 p.—7 c. List Price 7s.

A protest against exploitation of boy labour in England. Recommends reforms in elementary schools and continuation classes, the introduction of vocational guidanace and juvenile employment bureaux, and co-operation between employees and educationalists. A general study of the problem in England.

Contents.—The problem, the boy, the work, choice of work, elementary school, continuation school, reform of boy-work, conclusion.

WHY A BOY SHOULD LEARN A TRADE—Peter M. Kling. 1906. Published by author, Pittsburgh, Pa., U. S. A. 5½ by 7¾—188 p. 18 c.

A book of advice to the boy or young man who is forced to work and gain an education at the same time. Written "to put the right man in the right place." Points out the value and importance of thoroughly learning a trade as preparation for a successful life.

Contents (abbreviated).—Why, how, and where to learn a trade; Advice to the apprentice; Work and play; Importance of education; Character; Future possibilities; Social duties, citizenship, etc.

THE
DEPARTMENT OF LABOUR, CANADA
Hon. JAMES MURDOCK, Minister of Labour

Vocational Education

NUMBER 5 DECEMBER, 1922

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ISSUED BY THE TECHNICAL EDUCATION BRANCH
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DEPARTMENT OF LABOUR, CANADA
Hon. JAMES MURDOCK, Minister of Labour

VOCATIONAL EDUCATION

Number 5 December, 1922

COMPULSORY SCHOOL ATTENDANCE IN ONTARIO

The Ontario Adolescent School Attendance Act, which many authorities believe to be the most advanced continuation school law enacted by any government, is now being tested and educationists in all parts of Canada are eagerly awaiting the verdict regarding its operation. Similar legislation is in effect in many parts of the United States and the provisions of the Act are similar to those dealing with compulsory school attendance found in the Fisher Act of England and the Scotch Education Act of 1918. This legislation represents for Canada a decided advance beyond any provided by the other provinces and some apprehension had been expressed that it would not prove workable. Many difficulties have been met and others remain to be overcome, but present conditions indicate that the Act is being gradually put into effect and that within a very few years it will be effective in all parts of the province. It is too early to state that the measure is an unqualified success, but those responsible for its administration express satisfaction with the progress made and a confidence that the chief difficulties have been overcome.

A brief review of developments leading up to the existing legislation and a summary of its provisions and purposes may be of interest to teachers and others engaged in vocational education and not familiar with the school system of Ontario.

The first Adolescent School Attendance Act was passed in April, 1912. The purpose and scope of this Act are indicated by the following provisions:—

> Section 3. (1) A Board may pass by-laws requiring the attendance of adolescents in a city, town or village under the jurisdiction of the Board at day or evening classes to be established by the Board or at some other classes or school in the municipality.
>
> Section 7. (1) If within thirty days after the passing of a by-law under this Act, a petition signed by at least ten per cent of the municipal electors in the municipality is filed with the clerk of the municipality praying that such by-law shall be submitted, the council shall, at a date not later than the next general municipal election in the municipality, submit the same in the manner provided by the Consolidated Municipal Act, 1903, to a vote of the electors of the municipality qualified to vote at municipal elections.

As this Act required the passing of a by-law in order to make it effective, and as the best efforts of the Board could be defeated by the vote of the electors, the Act failed to become effective in many parts of the province. The apparent need for improved legislation is expressed in the following quotation from the report of the provincial director of technical education for 1914:—

"Certain interesting features of the educational situation are being made clear through the development of evening class instruction. A very small percentage of the attendance is made up of pupils between the ages of fourteen and eighteen. The classes are being attended by persons of maturer years who have found by experience the disadvantages and the handicaps of the lack of education. They are consequently meeting a certain felt need in the community, but at the same time it must be admitted that they are not meeting other needs which are more urgent. They are not providing those who leave the public schools with a complete and continuous course of training of either an academic or a vocational character. The persons concerned are not in attendance. They drop out of school and wander about for several years before they apply for admission to an evening school. From an educational standpoint, and very frequently from an industrial standpoint as well, these years are lost to the pupils. Moreover, the proportion of the whole who apply for admission is very small. Nor is it likely that we can ever rely on evening schools to provide a satisfactory education for adolescents. But few of the youths at this stage have the steadfastness of purpose necessary to take up and to continue a course of study at evening schools.

"Another feature is worthy of note. A large proportion of the pupils, especially of the men, in attendance at evening classes are handicapped by the lack of an elementary public school education. In fact, a good part of the time in evening class instruction is taken up with the attempt to remedy this defect. It is evident that most of the students dropped out of school before they completed the public school course of study.

"It would appear that the industries are recruited from those who leave school from Forms II and III. This conclusion is suggested by the character of the attendance in evening classes. It is confirmed, in so far as I have been able to investigate the subject, by a determination of the educational standing of those employed in factories. I am forced to conclude that a very small percentage of those who have completed the full public school course of study become industrial workers. The educational status of those entering the industries, considered either from the point of view of the personal needs of the individual or the requirements of the state, is unsatisfactory. An elementary education is necessary as a foundation for all forms of vocational and technical education; it need no longer be argued that it is essential to useful citizenship. It is the intention of the state that all should receive such an education. The efficiency of a public school system in attaining this end depends mainly upon two factors, upon organization, including the selection of properly trained teachers, the prescribing of courses of study, the erection of suitable buildings, the providing of equipment, etc., and upon attendance. In perfecting our system we have been laying stress mainly upon the first of these factors. Our efforts have been directed towards improving the means of education for the few who continue our courses and our attention has not been particularly directed to the condition of the many who fail to complete them. But it is evident that no matter how perfect the system, the aims to be realized cannot be attained unless the attendance of those to be educated can be secured for the complete courses offered." . . . .

The 1912 Act reappeared in the Revised Statutes of Ontario, 1914 (Chapter 275). In 1916 the Act was remodelled (6 George V, Chapter 62) and the clauses requiring the submission of the Act to the electors, if they petitioned for such submission, were deleted. In general the Act conferred more power on the boards.

In 1919 the Act was changed to its present form (9 George V, Chapter 78). The salient point about this Act is that the optional power of the board to pass by-laws providing for compulsory attendance is struck out, and the legislation makes the attendance of adolescents compulsory.

The Act states that "Adolescent" shall mean a person of either sex who is not more than eighteen years of age. In previous legislation an adolescent meant a young person under the age of seventeen years.

The Act becomes effective in three stages in order to give school authorities and employers the necessary time to complete arrangements for the carrying out of the law.

Section 3, which became effective on September 1, 1921, provides that every adolescent between fourteen to sixteen years of age shall attend school full time unless exempted for any of the following reasons:—

(*a*) He is unable to attend school on account of sickness or physical defect.
(*b*) He has obtained an employment certificate.
(*c*) He has obtained matriculation standing or its equivalent.
(*d*) He attends some other approved educational institution.

An employment certificate may be granted on the written application of a parent or guardian stating,—

(*a*) that the adolescent's services are required in any permitted occupation in or about the home of his parent or guardian;

(*b*) that the adolescent's services are required in some gainful permitted occupation for the support of the adolescent or some person dependent upon him.

Adolescents who hold an employment certificate must attend school for at least 400 hours each year.

No adolescent between fourteen and sixteen years of age shall be employed between the hours of 8 a.m. and 5 p.m. unless he holds an employment certificate.

Section 9 of the Act, which became effective September 1, 1922, states that every urban municipality with a population of 5,000 or over shall, and any other municipality or school section may, establish and maintain part-time courses for the instruction of adolescents between fourteen and eighteen years of age.

Classes providing part-time courses for adolescents shall be open the same number of days as the high schools and such classes shall not open before 8 a.m. nor close before 5 p.m. The time spent by an adolescent at part-time courses shall be a part of the number of hours that such adolescent may be lawfully employed.

Section 7 of the Act, which becomes effective September 1, 1923, provides that every adolescent between sixteen and eighteen years of age shall attend part-time courses for at least 320 hours each year unless exempted for any of the following reasons:—

(*a*) He is unable to attend on account of sickness or physical defect.

(*b*) He has obtained matriculation standing or its equivalent.

(*c*) He attends some other approved educational institution.

(*d*) He can satisfy the school inspector that he has been under full-time instruction in an approved school up to the age of sixteen years.

The Act makes provisions for penalizing employer and guardians who connive at failure on the part of an adolescent to attend classes as required under the Act.

The purpose of the Act is very well explained in the following treatise which appeared in the Ontario School Board Journal from the pen of F. P. Gavin, Assistant Director of Technical Education for Ontario:—

"The purpose of this Act is to lengthen the period during which the state through the school has control over the training of the adolescent boy or girl. Under the ordinary school attendance laws the period ends at fourteen years of age. Under the Adolescent Act it is proposed to take such control of the young boy or girl that there will be added to the period the equivalent of about two years' full-time attendance.

"There are three fundamental and increasingly important reasons for such action.

"At present children are allowed to leave school at fourteen years of age regardless of their attainments, without any preparation for wage-earning and without an opportunity to find out what work they are best fitted to do in life. They are not mature enough either in body, mind, or in character to gain admittance to desirable employment. The doors of skilled employment where they might continue to learn something useful are closed to such youthful workers. The technical branch of the Department of Education has made surveys of ten Ontario cities for the purpose of determining the need, if any, of technical education, and the nature of it, in each community. In calling upon employers to learn the number and distribution of employees, we inquired about the age at which they would take young workers. In the case of skilled or semi-skilled occupations the employers, with scarcely an exception, stated they did not employ adolescents under sixteen years of age. 'They are not strong enough,' 'they waste too much material,' 'they do not work,' 'they have no sense of responsibility,' are the things employers say about them. What, then, is the result? Such children find employment in unskilled occupations and blind-alley jobs, leading nowhere and only too frequently with bad environment. They shift about from one occupation to another with little opportunity to acquire skill or to increase their earning power. They soon reach the maximum earning capacity which they find insufficient to maintain decent standards of living as men and women. At twenty-one they usually find themselves without a trade, or any special skill, too old to start over again, and on the way to increasing the ranks of unskilled and casual labour.

"No child can be adequately educated for life by fourteen years of age. The sudden transition of such a child from school to wage-earning, and especially of the kind he must accept, is too complete and too dangerous.

"This sudden transition from the joint control of the school and the home to the apparent freedom of wage earning only too frequently results in a retrogression of character just at the time character is becoming fixed. The complete removal of the school control and the loosening of the home control when a boy begins to earn money are responsible for much of the 'rowdyism' so apparent in adolescents.

"In all civilized lands criminal statistics show two sad and significant facts: First, that adolescence is pre-eminently the criminal age when most first commitments occur and when most vicious careers are begun. Second, the proportion of juvenile delinquents seems to be everywhere increasing.

"The report of the Toronto juvenile court shows the ages of children brought into court during 1920. The percentage of these ages are:—

Age 7 years	1·05
" 8 "	3·28
" 9 "	7·14
" 10 "	9·04
" 11 "	10·30
" 12 "	15·21
" 13 "	11·18
" 14 "	18·55
" 15 "	20·19
" 16 "	2·63
Age unknown	1·40

"The table shows that 39 per cent of the delinquent are fourteen or fifteen years of age. Judge Mott points out that up to the age of fourteen the school and the home have joint control of the child. As soon as the school gives up its control, there is a sudden rise in the frequency of petty crimes. One must conclude there should be some kind of school influence and control during these two dangerous and difficult years of the adolescent's life.

"The outbreak of lawlessness, of robbery and of murder from which the world is suffering is characterized by the youthfulness of the offenders, usually young men of nineteen, twenty, twenty-one and twenty-two years of age. Most of these offenders began criminal careers in their adolescent years, passing by easy stages from petty thievery to motor stealing, to highway robbery, and, finally murder.

"Further, to this sudden release from school and home influences while the character is yet fluid and unformed is doubtless due much of the physical degeneracy revealed by the call to arms. Recruiting uncovered a horrible amount of wreckage and physical degeneracy among the young men of the nation, much of which could be traced to bad environment during the adolescent years.

"To repeat, no child can be adequately educated for life by fourteen years of age. His body has not the physical development, his intellect the training, nor his character the stability to deal successfully with the work or with the temptations of the world. He needs as at no other period in his life the steadying influences of wise counsel, kindly control and sound standards of judgment and conduct. If the need of the normal boy for these influences is so great, how much greater must be the need of the abnormal boy, the weak-willed boy, the wilful boy, the poorly-nourished boy, either physically or mentally, or the boy with bad home conditions. Everyone responsible for education longs to deal with the young mind between the ages of fourteen and eighteen. They are the most fruitful years, and the mental gain and moral discipline which may be obtained in them may decide the whole future of the individual."

This Act will touch many thousands of young lives that would otherwise not be reached by the school system. Naturally parents, who depend upon their children's earnings, will be interested in the economic side. In larger municipalities the ratepayers may have to pay more in order to extend the benefit of schooling to adolescents. The co-operation of employers will be needed to make the law effective and to insure that children shall not be penalized because they are obliged to spend an hour and a half of their daily working time in self-improvement.

The Provincial School Attendance Officer, in his report for 1921, makes the following statement:—

"The vital test of the Adolescent School Attendance Act will probably come when part-time courses are established next September (1922). In the organization and maintenance of these classes boards of education and school trustees will have an opportunity of showing what can be done by local education authorities in providing courses to meet local conditions. School attendance officers of the municipalities concerned should be able to furnish information to assist the education authorities in planning such courses. They will be able to present the names, ages, and addresses of all adolescents fourteen to fifteen years of age who require part-time instruction, the nature and situation of their occupations, their educational qualifications and special aptitudes, and also their desires in relation to special courses or subjects which may be provided. With this information properly arranged and classified, the local authorities should have little difficulty in designing courses of study which will not only interlock the school life of the child with his chosen calling but will provide a course for broader citizenship."

The Ontario Department of Education has issued instructions that no undue pressure is to be brought to bear on those children already engaged in regular work to make them return to school. At the same time the Minister of Education has made it clear to school boards that the Act will be fully effective to the extent that attendance officers be appointed according to law, and their departments organized to ensure first, that all young persons between fourteen and sixteen years of age shall be either at school or at work, and second, that all those who are at work either at home or in gainful employment shall hold the certificates required by law.

COMPULSORY PART-TIME SCHOOL ATTENDANCE IN THE UNITED STATES

The first attempt to establish compulsory part-time school attendance laws in the United States was made by Wisconsin in 1911, when an Act was passed whereby adolescents between the ages of fourteen and seventeen years were compelled to attend school for eight hours each week during a period of eight months. In 1915, Pennsylvania followed with similar legislation for adolescents between fourteen and sixteen. Ten other states adopted compulsory part-time laws in 1919, six states followed in 1920, and at the present time some form of compulsory part-time school attendance is in force throughout the greater part of the country. All of the laws are similar to the Adolescent School Attendance Act of Ontario, referred to in the previous article, but the provisions are not the same in each Act. The ages of required attendance vary between fourteen and eighteen years, the hours of required attendance vary from four to eight per week, the length of time during which the classes must be in operation varies from 144 school hours to the full time required of the regular full-time public schools and the minimum number of minors or adolescents required in a community before the law becomes compulsory varies from 12 to 200, but in some cases the establishment of part-time classes is dependent upon the total population of the community, as in Ontario. The following extracts from Bulletin No. 55, 1920, of the United States Federal Board for Vocational Education gives a summary of the provisions existing at that time:—

MINIMUM NUMBER OF MINORS REQUIRED TO ESTABLISH CLASSES

A State law should be as general in its application as possible, and it will be clear that any fixing of an absolute minimum as regards number of employed minors in a given district required to give effect to the law in the establishment locally of part-time schools will result in the educational neglect of a very considerable number of minors who should be reached.

The administrative agencies cannot, however, be entirely disregarded, as it is quite obvious that the higher the minimum designated to give effect locally to any law, the simpler the problem of compulsory part-time education becomes administratively. In several instances population is taken into account, and the law made effective only for cities of certain size.

In general, it may be said that possibility of enforcement of the law must determine the minimum, which should be in every case as low as it can be made without rendering the law practically unenforceable.

AGE PERIOD OF REQUIRED ATTENDANCE

The highest age limit designated in any State law so far enacted is eighteen years, and the lowest and most commonly designated minimum at which compulsory part-time education may begin is fourteen years. In a few states attendance upon full-time schools up to the age of sixteen is compulsory—with some exceptions in the case of children of special school advancement who are permitted to leave school under unusual conditions, but in no case under the age of fourteen.

No general pronouncement can be made as to what minimum age and maximum age is best to be designated in compulsory part-time laws. Determination of these limits is an individual problem for each state. The general principle to be observed is that above referred to, namely, that the period of compulsory part-time attendance should be co-extensive with the period of transition and adjustment for minors leaving school to enter upon wage-earning employments. Whether this means one, two, three or four years of compulsory part-time schooling will depend upon local conditions. It may fairly be assumed, however, that for some time to come few if any states will be prepared to raise the maximum age limit above eighteen years, and certainly no state is considering a minimum of less than fourteen years, as the lowest age at which children will be allowed to leave day instruction and enter upon a gainful occupation. The tendency seems rather to be to extend the age period of compulsory full-time attendance to sixteen, and to make the period of compulsory part-time school attendance sixteen to eighteen years, this minimum sixteen-year-age limit to be enforced in every case, whatever the scholastic attainment of the pupil may be. Such provisions can very well be enforced in states where high school educational opportunities are open to all minors.

One cannot easily dismiss any consideration of compulsory attendance laws and minimum age requirements in such laws, without giving some consideration to the question so often raised as to whether our public schools as developed are after all so constituted as to give really useful education to all children. Or rather to state the question somewhat differently, whether actual employment, with the responsibilities, practical discipline, and educational opportunities that are frequently associated with actual employment, does not present for a certain number of our youth, it may be for only a minority of them, educational advantages on the whole superior to those offered at present by public schools. It certainly will not be inferred that the mere statement of these queries implies any advocacy of the promiscuous employment of minors without any sort of governmental direction or control. Such an inference would be entirely unwarranted.

The states already have decided to some extent the kinds of occupations in which minors may engage. They should take the next step and determine whether the individual minor is fitted for the particular occupation which he proposes to enter.

In other words, calendar age does not in every instance indicate physical fitness for a particular kind of work, whatever age is designated as the minimum age for leaving school to engage in employment. Unless some scheme of medical inspection is set up, probably many minors will be done an injustice. The task of setting up an authority to determine who may be excused from school to enter upon a wage-earning employment is one involving very considerable responsibilities. Of course, state laws must fix a minimum age, but attainment of this age should not be the only condition imposed upon those who would leave school. Coupled with the age condition should be a minimum scholastic requirement, and an approved physical condition.

HOURS A WEEK OF REQUIRED ATTENDANCE

The states which have so far passed compulsory part-time laws vary in the amount of required attendance from four to eight hours a week; seven states require four hours, two require five hours, one requires six hours, six require eight hours, and one state has a minimum of four hours with the provisions that a maximum of eight hours may be required.

There is considerable difference of opinion as to what constitutes the proper period of part-time attendance which may be required, with a preponderance in favour of eight hours. Most of the states require this as a weekly attendance.

A consideration of this phase of the problem raised the question if it is not a mistake to require attendance for a given number of hours each week in all cases. Many who are studying the question believe that the total number of hours of required attendance in a week should be stated in the law, with the provision that in certain instances where the character of the employment would make it advantageous, a shorter number of weeks with an increased number of hours a week could be substituted. This modification would seem advisable, especially in those states which require the establishment of part-time schools wherever a small number of minors are employed. It would enable some communities to establish under certain conditions dull season or winter courses for persons engaged in seasonal employment. In the case of the rural districts it would be possible under this plan to have a winter term of school. It is obvious that a more complicated administrative situation might be created, but on the other hand it would permit greater elasticity, and would remove in some instances the difficulties encountered by both employers and employees in arranging for part-time attendance.

It is generally conceded that four hours or some multiple of this number is administratively the desired required attendance a week.

TOTAL NUMBER OF HOURS' ATTENDANCE IN A YEAR

Twelve states which have passed these laws require that the part-time schools or classes shall be open for the same length of term as the other public schools of the district; three require the total attendance of 144 hours, which amounts in reality to a thirty-six-week session, the requirement specified by one other state. One state requires an attendance of eight months 8 hours a week, and two states require an attendance of 150 hours. The minimum required in any of the states which have passed part-time laws is the minimum set up by the federal vocational education act to enable the state to expend that portion of the trade or industrial fund which must be expended for part-time education, if expended at all, namely 144 hours. In planning future legislation 144 hours a year should probably be the lowest minimum of required attendance to be considered, and in some instances twice this amount, or 288 hours, will probably be desirable.

TIME FOR HOLDING CLASSES

Practically every state requires that the schools or classes shall be held during the usual working hours of the minor; usually the laws state specifically that such classes shall be held between the hours of 8 a.m. and 5 or 6 p.m. Some of the state directors favour the elimination of Saturday part-time classes; others believe that Saturday can be used advantageously for part-time work, especially in the larger cities.

It is certain that the attendance should be required during the working hours of the pupils. In other words, the hours of part-time attendance required should be subtracted from the total number of hours which a minor is allowed by the state law to work. For example, when the state law allows a minor to work forty-eight hours and the required part-time school attendance is eight hours, the number of hours in which a minor may be legally employed should be automatically reduced to forty, the eight hours of attendance upon a part-time school being considered as a part of the time of the total forty-eight hours.

In this connection, it may be well to state that there is a practical unanimity of opinion that evening school attendance should not be allowed as a substitute for attendance upon a day part-time school. Only one state of the Union requires attendance of fourteen- to sixteen-year minors upon evening schools. All persons who have had experience in the conduct of an evening school realize the little value of required attendance of persons under sixteen years of age. One of the states allows such evening school attendance to be substituted for part-time attendance in certain instances, but the provision was enacted against the wishes of the public school authorities of the state. It is obvious that the final decision as to the particular time of required attendance of an individual minor must be left to the school authorities.

SOME DIFFICULTIES MET IN ENFORCING THE ATTENDANCE LAWS IN THE UNITED STATES

(As reported to Bureau of Education by School Attendance Officers)

From *School Life,* January 15, 1920.

1. " Present law provides punishment for parents only for each week's failure to send children to school, thus leaving opportunity for part weekly detention at home."
2. " Too few attendance officers."
3. " Keeping boys and girls in school until they are sixteen years of age because they can't do fractions or fifth-grade work, when they are mentally deficient and no provision is made for them."
4. " Employment certificate should not be property of child. New certificates should be issued when child leaves job and takes another."
5. " No provision for aiding indigent families with children of compulsory age."
6. " No provision for truant girls."
7. " Private schools are not required to report absences."
8. " Law cannot be enforced because of so many exemptions."
9. " Prosecution should be in juvenile court instead of criminal court or courts of local justice of the peace."
10. " No provision for habitual truants."
11. " Lack of registration of births."
12. " No continuous school census."
13. " Failure of teachers to report absences."
14. " Dropping child's name from school register after an absence of three days."
15. " No interest on part of state school officials."

THE WORK OF THE DIRECTOR OF PART-TIME EDUCATION

The policy and plans of those responsible for the administration of the part-time law in California are outlined in the following extracts from Part-Time News Notes, No. 3, issued by the University of California, Division of Vocational Education, January.

We are proceeding on the policy that the function of the part-time school is to help the individual to realize his desire for self-improvement, or, where lacking, to inspire a desire for self-improvement, towards a satisfactory type of citizenship, and towards efficiency in service.

To carry out this idea we have tried to find out from the pupil himself what he thinks will be the most worth-while instruction for him, and then we are arranging to give that instruction. It will be our policy to secure teachers whose experience and training have specially fitted them to give the special types of instruction called for, particularly in vocational and related subjects. Occasionally there will arise individual cases of pupils who desire some form of vocational instruction which cannot be given in the school. We believe the policy should be to meet these demands by finding some one engaged in the occupation the pupil wants to learn, who is able and willing to instruct, and to engage him to give this instruction in his own place of business, for four hours per week.

For the most part it appears that pupils are choosing with considerable wisdom. Where this does not appear to be the case our policy will be not to effect a change by any sudden wrench; but in due time by wise counselling with both pupil and parent, and by engaging the influence of the employer, to bring about a desire in the pupil's mind for a change to something better.

We believe the success of the part-time school will depend largely upon making the instruction so practical and so linking it up with the job, that the employer will recognize improvement in his employees due to part-time school attendance. Therefore, it will be our policy to induce the employer to take an interest in the work which his employees are doing in the school, to ask his advice as to the most beneficial instruction for the pupil, to induce him to let the pupil know he is interested, to watch for improvement in the employee's work as a result of schooling, to recognize improvement when observed both by commendatory word and, when sufficient improvement is made, by substantial reward.

The law does not require the employer to pay for the time in school. Many are now willing to pay but a few are not. It will be the policy of the school to try to make the results of instruction of sufficient value to the employer that he will feel it to his advantage to pay the employee for the time in school.

It will also be our policy to use this interest and co-operation of the employer to secure prompt and regular attendance in school.

We have encountered the problem of bringing together into groups of the proper size to form classes, pupils who desire the same kind of instruction. Business conditions vary with different employers, and a convenient time for one is not convenient for another. It will be our policy to co-operate with employers in making time adjustments, to the fullest extent consistent with efficient class organization. For this and other reasons it will be our policy to *concentrate all part-time classes in one centre.* We are thus enabled to draw, not from one section only, but from the whole city, pupils whose work conditions will permit them to attend school at the same time, and thus be able to make up normal-sized classes of pupils desiring the same instruction. This policy also effects economy in rooms, equipment, and teachers' time by avoiding the necessity of travelling from one class to another.

Through the part-time education law the state has assumed joint guardianship of minors up to eighteen years of age. The officers and teachers of the part-time school are the agents of the state in this guardianship. If this guardianship is to extend only over the four hours per week which the youth spends in school, it will amount to but little. It must extend over the other forty or forty-five working hours, and even beyond to the hours of recreation. Therefore, it will be the policy of the part-time school to plan all teachers' time so as to allow for visitation of pupils at the place of employment, or the home, to observe working conditions, to confer with employers and parents, to correlate instruction with the work, and to direct youths in social as well as vocational matters.

We believe that if these policies can be carried out with proper financial and moral backing, if the attitude above suggested on the part of employers can be secured, if the pupil can come to know that his employer is interested in his school work, is watching his progress in those characteristics which make for good citizenship and increased efficiency, and will reward progress with promotion and increased pay, the part-time school is destined to do a great work for the community, and to become for those engaged in it the most interesting school work to be found anywhere.

The part-time law provides that instruction "shall be suited to the varying needs of the individual pupils." As already stated, our policy was to give each individual the special kind of instruction, vocational or otherwise, which would seem to benefit him most. A short question blank was sent to each individual, asking exactly what kind of work the minor was doing, what would help him most in that work, and what else, if anything, he wished to learn in the part-time school. A form letter to the employer was prepared in which our aims were set forth, and his advice and assistance to the employee in filling out the blank was solicited.

It will be seen that this information was indispensable if our policy was to be carried out, otherwise, for example, we might engage a commercial teacher and find out, when the pupils came, that we needed a machine shop teacher.

When these questionaires were all returned, they were classified or grouped according to the kind of instruction desired. This gave definite information as to the total number of pupils to be provided for at the opening of school, the number in each group, as for example, the commercial group, the home economics group, the machinist apprentice group, etc., and consequently the number and kind of teachers needed.

The next question was where to find the right teacher.

Practically every position in the part-time school called for a specialist. The director felt that the citizenship work was of too great importance, to be dabbled in by any and all teachers, but that this work should be organized under one specialist, having the highest qualifications possible. He also felt that the vocational and social guidance should be in the hands of a person specially trained in survey or research work, vocational counselling, and intelligence testing. In the teaching of related subjects, such as shop mathematics or mechanical drafting, to boys in the mechanical industries, it was felt that even a good college-trained academic teacher, with no first-hand knowledge of shop work or shop conditions, would not be likely to prove satisfactory. This work must connect directly with the job. The teacher must command the respect of these boys by knowing more about their own job than they know. He must be able to meet them on their own ground, to talk in shop terms, to know shop needs and shop conditions, to know the applications in such a way that the boy realizes that he is getting something which he can take right back to the job, and use.

It goes without saying that whatever trade continuation or preparation teaching is done must be by people of successful experience in the trade.

It was agreed in the beginning that the hours of work and rate of pay for part-time teachers should be the same as that of full-time high school teachers. To do less than this would be to eliminate, at the outset, any possibility of securing the highest grade of teachers, which would place the part-time school under a handicap which it could hardly hope to survive. The rule of the Board of Education requires high school teachers to be on duty six hours; there are also stipulations as to how much of this time shall be actual teaching. It was agreed that in the case of part-time teachers not more than four hours' teaching would be required, the remainder of the time to be devoted to visitation of pupils, parents or employers, and correlation of instruction with employment.

AN EXPERIMENT IN VOLUNTARY CONTINUATION SCHOOLS

By E. T. Bazeley

(Extract from University of California, Division of Vocational Education, Part-time Education Series No. 8, Bulletin No. 6, November, 1921)

The field of the first experiment was a manufacturing town, Q., where two prominent firms had invited the local authority to open a continuation school—the first in the city—for some of their young hands. The first firm, A, owned three large paper and colour printing works; the second, B, were sweetmakers. Each firm contributed thirty girls; the sixty girls from these four factories came in three classes of twenty, for two four-hour sessions a week.

A difference in the attitude of the girls from the two firms was at once perceptible. Firm A, realizing that the idea of "going back to school" was likely to cause resentment among the girls and their parents, had been preparing carefully for several weeks. Foremen and forewomen had been consulted, and the idea of the school explained to them. A letter had been sent to the parents of each girl of an age to go to school, addressed to "Dear Mr. and Mrs. C," and informing them that a school for some thirty of the firm's young girls would shortly be opened by the Local Education Authority and asking them whether, *if their daughter was selected,* they would be willing for her to attend school. The result of this letter, making attendance at the classes the result of selection, was that almost every parent wrote eagerly asking that their Jane or Polly might attend.

Firm B, however, were unable to make any preparations of this kind; it was a time of great expansion of trade, and all the new girls taken on were merely told that they would be expected to attend school as a condition of employment; and the consequence was a good deal of suspicion and resentment among the girls, very little support from the parents, and some opposition from foremen and women.

Firm A gave me the opportunity of going over their three factories and having a friendly chat with the future pupils. I did not realize at the time what a difference this would make. It meant that these girls knew a little to whom and to what they were coming. At firm B, I also made a tour of the works, but I had no opportunity of seeing the youngest girls scattered over a vast factory among gangs of older workers. Consequently these girls started for school full of apprehension, on the defensive, and, at the worst, hostile—their recollection of their day-school being, as I soon found out, mostly of a time of restraint and boredom, if of nothing worse.

The girls from firm A, with one or two exceptions, came willingly to school from the first; but with the girls from firm B it was, as soon as they got on friendly terms with me, "Miss, have we *got* to come here till we are sixteen?" After the first three or four months, however, it was, "Miss, all the girls in my room wishes they could come to school"; or (from a new girl), "Miss, I thought it would be like day-school, but I loves this"; and, "Miss, do you think they will let us stay till we are sixteen?"

There were, however, some irreconcilables to the end.

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When I planned out the work for the continuation school, before it opened, I did so under the delusion that I should find something to continue. I had previously taught Standards VI and VII, and I had always found I could get them actively interested—or, at any rate, to appear to be actively interested—in geography, science, literature, or whatever topic we had in hand.

I thought I should be able to work on the same lines with my continuation school girls. It was far otherwise. Two main tendencies I found among my girls: firstly, that they were extremely disinclined to make the least mental effort. As soon as they perceived that they were being expected to attend to a geography or history lesson, their minds (with two or three exceptions) spontaneously assumed an attitude of, at best, passive, and often active, hostility, their faces expressing blank indifference or antagonism. Secondly, I found that of all the wide range of interests common to the healthy-minded young person, all but one seemed to be extinguished. They had no spontaneous interest left in things, affairs, or ideas; their one dominant interest was in people and in personal relationships.

There is a famous picture of Hope, blindfolded, with all the strings of her lyre but one broken, sending one solitary and repeated note, her last, into interstellar space.

That picture represents many of these young manual workers. Almost all the quick and living interest in the world outside them, which was probably as healthily alive in them at the age of three as in more fortunately-placed children, has been quenched long before they reach continuation-school age, by the folly of much of our educational method and the squalor of our overcrowded streets and homes. One single strand of interest is preserved, one string only can one be sure will vibrate, namely, this interest in personal relationships. Left to themselves, they tend to sentimentalize and sensationalize whatever personal relationships come their way either by actual experience or, at second-hand, through the cinema. This interest in people is the teacher's one remaining road along which he can lead the class out into the freedom and healthiness of disinterested interests, his one remaining tool which he can depend on to effect his purpose. I have never failed to find them listen with rapt attention to a story. What is more, they instinctively, if unconsciously, measure their own sordid fantasies against a really beautiful and absorbing story, with the consequences that the whole level of their effort and aspiration is raised.

I found, too, that if I presented a distasteful subject, such as geography, in the form of a story of personal travels, illustrated with sketches, they would listen with delight, and would even swallow maps if introduced casually enough.

I need hardly add that they not only had no inclination, but not the least idea how to use books on their own account.

How can one account for this extraordinary poverty of mental background and interest? My study of the girls led me to account for it in some measure as follows: The primary day-school provides a quasi-literary education, but the homes of the majority of unskilled workers are not literary in any way. They contain no books, no ideas. There is no continuity between the life of the average home and the life of the school; one must remember that the children of the working men who do think and do have books, mostly go on into central, trade, or secondary schools, and do not find their way at fourteen into factories. As soon as a child leaves the elementary school, she is reabsorbed into the illiterate life of the home, street, and factory. Welfare workers understand what I mean when I speak of the (to a teacher) amazing illiteracy and ignorance of girls who have perhaps only left school a few weeks previously. It takes but a few weeks to obliterate the literary manners taught in school.

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Why, one asked oneself in the second place, have they such an aversion from mental effort? Why is it of all things the most intolerable to them? One of the girls, in a class discussion on compulsory attendance at classes they did not like—a girl from Standard VII, a jolly, bright, friendly person—said, in one of those illuminating utterances one gets from children now and again, "Why we hates these things now, Miss, is because when we were at day school we were forced to learn the things we did not understand."

As a result of intimate study of my girls, I formed the opinion that for the first few months very little attempt should be made to teach them by means of even simple generalizations, such as one would use with children of the same age of the high-school type. Oral lessons were overdone with these children in their earlier years. They were prematurely taught in terms of generalizations and mental abstractions at a time when these were meaningless to them, so that now, as young workers of fifteen, words conveyed extraordinarily little to them. In intellectual development they are still children much younger than their years, with a child's appetite for particulars and picturesque detail. Geography must be reintroduced to them not by maps nor even by local geography, but by stories of how people and animals live in foreign countries. History must be represented to them not as the development of nations and of causes, but by means of the stories and aims of national heroes, such, for instance, as those of Garibaldi.

I soon found that they could not learn much at this stage by any form of verbal teaching, but very much by experience, by doing of every kind. It became clear to me that the first few months of the continuation school for these young factory workers must be a period not so much of class instruction, but of re-education by doing. They had their first fruitful experience of concentrating their attention, not in the medium of words, but in that of rhythmic movement. Most of them found themselves not by an attention, which they are incapable of giving intelligently to the ordinary subjects of class instruction, but by every form of artistic and useful handwork, by dancing, singing, and rhythmical work, by stories and dramatic work. Given this period of preparation, which will be longer or shorter according to circumstances, they will be ready for class instruction in most of the topics of human interest.

There was another cause, or group of causes, which prolonged this period of preparation and operated against the children settling down quickly into that organic co-operative unit, a class.

These causes, which I shall now consider under the head of discipline and of buildings, were closely interwoven in the case of this particular school.

The popular educational ideal of many authorities in the school world is expressed by the formula that "discipline is the first thing." In many day schools discipline is the first, second, and last thing—the external discipline, that is, of a sometimes benevolent and always arbitrary authority. The background and foreground of an ordinary school is rigid discipline, maintained by authority, based on fear. Next to discipline, but a long way second, is instruction. So many people want their results at once. They want them the moment the child enters the infant school; they cannot even wait for the results to begin to appear in Standard VI and VII. Consequently, from the infant school to Standard VII we have a uniform, unprogressive, external discipline; the child is as unintelligently obedient to authority at seven as he is at fourteen.

At fourteen these well-disciplined children are let loose into the works and streets, and in three weeks the only traces of this discipline left is in unreasoning, instinctive hostility to, and suspicion of, authority, a hostility which embraces everything which has ever been associated with authority. The children are let loose without any inner traditions of self-control, without any idea of group loyalty or service, with no idea of the principle of obedience, but only with a memory of the sterile practice of it; most of them (not all) are aggressively selfish and individualistic and many of the remainder are passively on the defensive.

A situation of this kind demands that those in authority shall be people who are able to practise the principles of leadership rather than methods of coercion.

I, of course, believe that discipline, true discipline, from within, is the aim and end of true education; it begins to be built up in the nursery, it progresses bit by bit with one experience after another as one stage of growth follows another, until at about the age of seventeen or eighteen you begin to have a social being, capable of self-direction, ready for every mental and physical exertion and capable of intelligent service to the community and enjoyment of the world in which he finds himself.

How did our school-house reinforce this tendency on the girls' part to a suspiciousness of authority?

We were housed in a solemn building which never belonged to us in any sense. Further, it reeked of school, its very aspect suggesting restraint and boredom, whilst inside it had the drab look one associates with empty Sunday schools, populated only by vacant benches and with all interesting worldly objects eliminated. We were fenced in by prohibition at every turn. In our classroom was a large glass cupboard full of fairly attractive-looking books, the lending library of the Sunday school. We were not allowed to have these books out even to look at, neither could they be removed to another room. There was a large, well-proportioned, well-lighted hall, most excellently suited for singing, country dancing, and physical exercises; but we were forbidden to enter, and had to content ourselves with an ill-shaped room in the basement. We were quite naturally forbidden the use of the Sunday school piano, but the girls had a gift for discovering harmoniums and additional pianos lying idle in unsuspected meeting-rooms, whence they were driven by the vigilance of the caretaker, an ex-sergeant-major. We had no walls we could call our own upon which we dared hang a picture or put our own rude attempts at beauty. We had not an inch of outside space, no room for games, no room for friendliness with beast, plant, or cloud outside our classroom.

We needed a playground with swings and apparatus for games, a strip of garden for plants and animals; we had a small library, but needed a growing one, as well as extra space and more materials for hand work and domestic classes.

The consequence was that though in many ways the girls found themselves in conditions quite unlike those of their day-schools, yet their was enough of authority, linked with prohibition, about the building, too many things they might not do and not enough variety of things they might do, to stimulate once more within them the old demon of boredom associated with instruction, and of a tendency to find their chief interest in doing the things the sergeant-major type of person stood for forbidding, rather than in the constructive activities to which their teachers invited them.

As I look back I realize that it was no wonder the first few months of the school were such hard going. But at last the spirit of the school was born.

I have referred before to the individualism of the girls. Though a friend might help a friend, there was very little spontaneous co-operation for the good of all. The spirit was rather that of a watcher keeping a jealous eye on the other fellows to see that they were not treated better than he was himself.

Towards the end of the first six months we decided to have a party to which the girls invited any or all of their friends. Owing to the fact that the girls were at work all the morning, the teachers prepared the feast, decorating the tea-tables and rooms with flowers. The caretaker suddenly and unexpectedly relented from the severity of his guardianship, adopted the school, opened the door of the large hall, produced the key of the piano from his pocket, and invited us to use this room instead of that in the basement.

Later in the day he was found presiding over the tea-urn in a side room, with a group of lamblike girls bearing cups of tea away to their guests. Rather a contrast for him after weeks of chasing "'ardened young girls" from those parts of the building which we all so conscientiously tried to keep sacred to the Sunday school.

This party was the first opportunity taken by the girls for spontaneous social service. During the previous months, in spite of many chances, they had shown only the faintest inclination to do things for the good of themselves or of the class; but now they spent themselves in the sweetest and most unselfish way in taking care of each other's mothers, sisters, and baby brothers. For almost the first time, in their singing and country dances they all worked together in perfect harmony, and all seemed to be moved by the spirit of the best of them, of eagerness to do everything and by a joyous wish to enjoy and not to grumble, and to make every one else enjoy the day. As one of them remarked with a happy sigh, "I think it's going off very well, miss; don't you?"

After this we were no longer a crowd of individuals, each seeing what he could get for himself, but we were a community with a spirit of fellowship born through a simple opportunity for social service. We were ready now for the co-operative effort of class instruction, as well as for many other things.

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